

**THE IMPACT OF SCHOOL DEVELOPMENT  
GRANTS ON STUDENT DROPOUT, ATTENDANCE  
AND ATTAINMENT WITH REFERENCE TO  
KOSOVO**

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## **Abstract**

The post-conflict nature of the Kosovo society and economy led to an urgent need to address educational policy, specifically to raise the quality of the reconstituted formal schooling system. To address this priority major foreign aid and government subsidies were targeted at both the demand (students) and supply (school) side. One of the major contributors, the World Bank, aimed to improve the supply side by allocating development grants to schools in order to improve student performance. In this thesis the following four research questions are addressed: how appropriate are current evaluation strategies of education policy initiatives in developing countries, what has been the impact of school development grants on student dropout, attendance and student attainment, what are determinants of pupil dropout, attendance and attainment and what are the implications of the answers to the above questions for the reform of education policies in developing economies and the evaluation of policy initiatives. This is the first study that critically reviews previous attempts at evaluating educational initiatives in Kosovo and then employs econometric methods to measure the impact of school development grants on educational outcomes. A quasi experimental approach is utilised and comparisons made between schools with treatment and schools without treatment. A similar study for Cambodia serves as a reference for our research, though we have extensively refined the approach taken in that study.

The empirical evidence presented in this thesis suggests at best only a marginal positive impact of these policy initiatives on educational outcomes. More specifically there is some evidence of reduced dropout but no effect is found on student attendance and attainment. These findings are consistent with the results of recent reviews of the literature on this type of policy initiative. This study seeks to act as an example of best practice which can be followed in future evaluations of policy initiatives in countries like Kosovo. It draws important conclusions about the need at the policy design stage to formulate appropriate evaluation strategy and to address related issues about data quality, collection and analysis.

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## **Abbreviations**

CEPS	Centre for Education Policy Studies
EPIP	Education Participation Improvement Project
EQIP	Education Quality Improvement Project
EMIS	Education Management Information System
GAP	Institute for Advanced Studies
GPA	Grade Point Average
IEG	Independent Evaluation Group
ISCED	International Standard Classification of Education
IV	Instrumental variables
MEF	Ministry of Economy and Finance
MEST	Ministry of Education, Science and Technology
OECD	Organisation for Economic Co-operation and Development
SOK	Statistical Office of Kosovo
UNICEF	United Nation Children Fund

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## **Preface**

This preface aims to set the background for the research on school development grants and their impact on dropout, attendance and attainment in Kosovo. The discussion starts with providing the context of the investigation. Next, the key research questions are introduced, the methodology chosen to answer them are explained and the data sources utilized for this research are outlined. Finally, an explanation is provided as to how the following chapters are organized.

A nation's level of educational attainment is seen as an important determinant of its economic and social welfare. Hanushek (2010) summarized the underlying economic theory on the relationship between educational attainment and economic growth in two approaches: neo-classical theory and endogenous growth theory. First, higher educational attainment can impact on national output by directly increasing labour force productivity. Secondly, higher levels of educational attainment may increase innovation and entrepreneurial activity leading to faster economic development. However, the effects of education are inconclusive when it comes to aggregate effects compared to the individual benefits (Belfield, 2000). It has been argued that higher stocks of human capital may have differing impacts on developed and developing countries. While higher educational attainment may be seen as a means for more developed countries to become competitive knowledge-based economies, for the developing countries raising and widening levels of educational attainment may be critical in their fight to alleviate poverty (Tisdell, 2005). As a result governments in developing countries have strived to enact policies that fight poverty by investing in education. To assist resource-constrained governments in developing countries, the pioneers of the fight against poverty such as the World Bank through International Development Association (IDA) have led a worldwide campaign aimed at decreasing global poverty through implementation of a so-called transfer programme that aims at subsidizing education. Kosovo, a post-conflict country with a GDP per capita of just 1750 Euro and one of the poorest European countries, has benefited from such schemes by about \$150 million. However, the evaluation of these

initiatives remains in its infancy and this provides the starting point for the research programme summarised in this thesis.

The political instability in Kosovo through the 1990s and the resulting conflict in 1999 had major ramifications for the Kosovar education system and prevented the convergence of that system to practices found in Western European countries. Apart from stagnation in the reform process, the education system was also severely damaged in terms of its infrastructure and as a result the quality of education suffered (OECD, 2001). In the last decade the Kosovo education system has been characterized by major reforms which are discussed in detail in chapter 1. These reforms sought to address the out-dated national curriculum, poorly qualified and rewarded teachers, the lack of modern teaching methods and the absence of pre-service and in-service teacher training. All these deficiencies in the education system profoundly impacted the student dropout and attendance rates, especially in post-primary school education. Educational outcomes in terms of attainment were only assessed internally and there were no established national exams.

It was only in 2005 that the Strategy of Higher Education and in 2007 the Strategies for the Pre-University Education were drafted and not until 2011 were all the existing strategies compiled into a Sector Strategy which serves as a road-map for the development of Kosovo's education system. Substantial foreign aid was given to post-conflict Kosovo to support the education sector by donors such as: the World Bank, UNICEF, and later the European Commission. However, the resulting externally-funded programmes were generally poorly co-ordinated and lacked any substantive evaluation.

The aim of the research programme presented in this thesis is to investigate the impact of school development grants on student attendance, dropout and attainment with reference to Kosovo. The main objective is to critically evaluate the theory and evidence concerning the impact of such policy initiatives. As previously explained significant financial resources have been devoted to educational programmes which aimed to improve educational outcomes in developing countries. However, the evaluation of these educational programmes remains underdeveloped and there are as yet few major visible effects on the level of educational attainment in the developing countries. Most of these

education programmes in developing countries have been process-oriented rather than impact-oriented, with a lack of data availability being reported as one of the main obstacles to implementing comprehensive evaluations in these countries. Apart from data unavailability, the frequently short duration of these programmes has also been seen as a constraint upon evaluating the outcomes.

This thesis will address the following research questions:

- a) How appropriate are current evaluation strategies of education policy initiatives in developing economies?
- b) What is the extent of pupil dropout, poor attendance and low attainment in Kosovo?
- c) What are the determinants of pupil dropout, attendance and low attainment and how are they affected by policy initiatives?
- d) What are the implications of the answers to the above questions for the reform of education policies in developing economies and the evaluation of policy initiatives?

The intention is to focus on the impact of a grant programme providing support for selected primary and secondary schools in Kosovo. This World Bank programme provided financial assistance to improve educational outcomes in primary and secondary schools in Kosovo. The programme was implemented in two phases under the name: Education Participation Improvement Project I (EPIP I) and II (EPIP II). This research focuses on the latter project since it was targeted specifically at the quality of education. For the purpose of this research the focus is on measuring the quality of education in terms of improving dropout, attendance and attainment rates. The methodology is based on a quasi-experimental approach. A ‘with and without treatment’ method compared the quasi experimental group, which has been targeted by the intervention, with a comparison group which was not part of the programme. The initial plan was to work with primary and secondary schools, however as the research programme developed it was decided that due to data problems to concentrate solely on secondary schools. As with other research in developing countries the reliability and availability of schooling data have

affected the research process. There are various data sources which have been utilized for our empirical analysis: the EPIP programme data collection system, municipality data and field visits to collect the data from the schools. Data collection for this research took much longer than anticipated and much more effort was required to attain an acceptable quality and quantity of data.

This is the first systematic study of the impact of the school development grants on dropout, attendance and attainment rate using an econometric approach in Kosovo. This study draws conclusions on the impact of the school development grants on dropout, attendance and attainment. It is anticipated that this research will stimulate the government of Kosovo to take appropriate steps to improve education data collection and monitoring processes that could in the future be used when conducting evaluations of policy initiatives and interventions.

The thesis consists of eight chapters and is organized as follows. Chapter 1 provides an overall introduction to the Kosovar education system and examines the major issues and developments which have characterized the post-conflict period since 1999. This chapter also contains an initial description of the levels and trends in dropout, attendance and attainment amongst Kosovar students. Chapter 2 provides a framework for the later analysis by reviewing the theory behind educational decision-making in compulsory and post-compulsory school education. It investigates the potential economic and social determinants of attendance and participation decisions. We apply the orthodox neoclassical economic theory to the Kosovar context and critically examine the household decision-making process and how that may have affected post-compulsory education decisions. We also critically review the limited existing empirical evidence on the determinants of dropout, attendance and attainment.

Before answering the question as to how appropriate are the current evaluation strategies of the educational programmes in developing countries, the arguments in chapter 3 focus on similar initiatives that have been conducted elsewhere by the World Bank and other donors. The analysis in chapter 3 is focused on the impact of the demand and supply side

interventions on dropout, attendance and attainment which have been implemented in other countries. More specifically, the nature and types of such interventions are examined and their reported effects reviewed. The focus here is on developing countries which are similar to Kosovo. In chapter 4 the analysis turns to Kosovo and examines what has been done so far in terms of policy initiatives aimed at improving pupil dropout, attendance and attainment rates. This review suggests that there have been only a few initiatives which have been evaluated and as such our research has novelty for this type of research. A detailed account of the World Bank intervention on which this research is based is provided, particularly focusing on the theory behind such policy initiatives. The analysis concludes that previous evaluations of education interventions have been characterised by various shortcomings in the design phase of the intervention which impact on the validity of the assessment undertaken. Previous evaluations of policy interventions have focused on the processes rather than on the impact, though data limitations may have contributed to this emphasis. The evaluation of education policies in Kosovo is still in its infancy and previous studies do not provide reliable evidence given their lack of econometric methods.

Given that previous evaluations had various shortcomings, in Chapter 5 the main threats to validity, such as the presence of endogeneity, selection bias and missing data are assessed. After examining these possible threats, the common methods used in the evaluation of the impact of dropout, attendance and attainment are critically reviewed and the choice made of an appropriate methodology for the current evaluation. More specifically a quasi experimental approach was chosen to make comparisons between the treatment and comparisons groups using class cohort level data. This chapter also explains the data utilized for the purpose of this research and identifies its remaining limitations. Chapter 6 and 7 of this thesis analyses the determinants of pupil dropout, low attendance and attainment and estimates how they have been affected by this policy initiative. Chapter 6 starts with the specification of the dropout model. Using regression analysis the impact of school development grants on continuation rates is analysed. Chapter 7 continues with estimations of the attendance and attainment models. Finally, chapter 8 addresses the answers derived for the four key research questions discussed

above. In this chapter the main findings are summarized and the main contributions to knowledge made by this research programme are identified. The chapter continues with the derivation of policy recommendations which are designed to enhance the reform process and the future evaluation of policy initiatives. The recommendations stemming from this research regarding evaluation practice have general relevance to developing countries.

# CHAPTER 1 AN INTRODUCTION TO FEATURES OF THE KOSOVAR EDUCATION SYSTEM

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## **1.1 Introduction**

As discussed in the Preface, education is seen as an important factor in economic development even though researchers argue that the impact of increased educational attainment may differ between developed and developing countries. The research programme reported in this thesis addresses four key research questions as explained in the Preface. As a background to their investigation, this chapter provides an initial introduction to the Kosovar education context and its performance in terms of dropout, attendance and attainment. Kosovo is a newly independent country, with a relatively high proportion of young people in its population. As part of ex-Yugoslavia, it may be regarded as a transition country and there have been ongoing post-conflict attempts to further the economic development of Kosovo through: market liberalization, macroeconomic stabilization, privatization and legal and institutional reforms. However, Kosovo suffered considerable loss of infrastructure during the conflict period and is still categorized as a developing country based on the World Bank classification, having the lowest GDP per head in Europe. Regardless of its classification, education is likely to have a key role in furthering the economic development of Kosovo.

Our discussion in this chapter focuses on providing an introduction to the Kosovo education system, its major developments, attempted reforms and encountered obstacles. This chapter also provides the basis for the analysis of student dropout, attendance and attainment issues in Kosovo schools. Section 1.2 provides an initial assessment of the Kosovo education system, examining all the major recent developments. In section 1.3 the focus is on the main issues addressed in this thesis by providing an initial examination of student dropout, attendance and attainment in Kosovo. Section 1.4 reviews the various government interventions as a predisposition towards improved quality through impacting dropout, attendance and attainment rates and finally section 1.5 concludes.

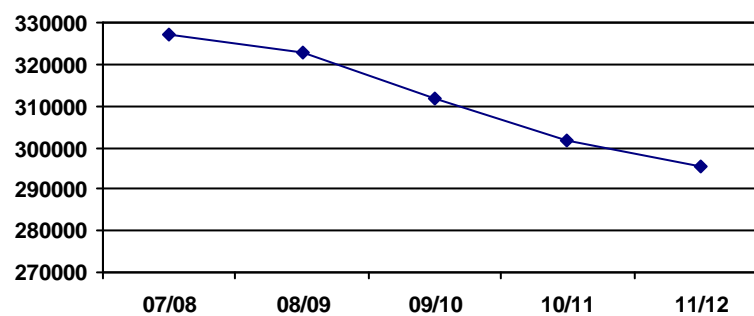


## 1.2 The Kosovo Education System: issues and developments

### 1.2.1 Basic demographic data

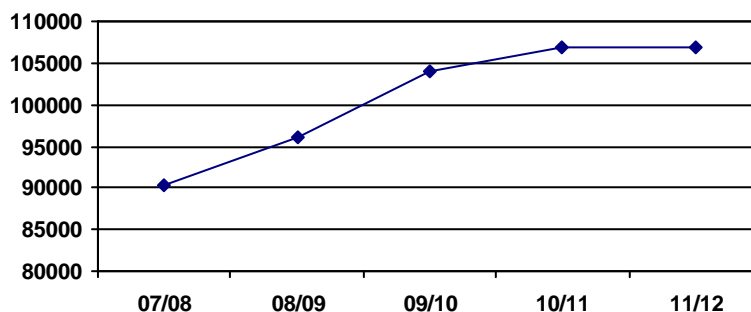
The latest census data conducted in 2011 estimates that about 1,739,825 people live in Kosovo. The National Survey on Demographics, Social and Reproductive Health conducted in 2009 suggests about 65% of the population are between ages 15-65, 28% of the population are under 15 years old and just 7% over 65 years old (SOK, 2011). In general compared to other European countries the Kosovar population has a higher proportion of younger age groups. However, there is a difference between urban and rural areas in the relative size of the under 15 years old category, with a higher percentage in the rural areas compared to the urban areas (SOK, 2011) A comparative analysis between the years 2003 and 2009 conducted in the above mentioned survey suggests that the fertility rates are now declining and as a result the percentage of children under 15 has also declined by about four percentage points. This decline can be observed in the education data in figure 1.1 which presents the number of the students in primary school in the academic years 2007/08-2011/12. During the same period, as shown in figure 1.2, the number of secondary level students was increasing.

**Figure 1. 1 Number of the students in primary schools (2007-2012)**



Data Sources: (MEST, 2007-2012)

**Figure 1. 2 Number of the students in secondary schools (2007-2012)**



Data Sources: (MEST, 2007-2012)

### **1.2.2 The impact of the conflict on education and its effects on student dropout attendance and attainment**

The developments in the 1990s had a major impact on the education system in Kosovo. The political circumstances in Kosovo caused numerous difficulties in the operation of the multi-ethnic education system and led to the creation of two separate education systems: a Serbian system and an underground Albanian system. Such a split in the Kosovar education system was an outcome of the official system being administered and funded by the government which was installed in Kosovo by Serbia following the suspension of Kosovo's autonomy; the unofficial system was not funded by the government at that time. Since the Serbian community represents a minority in Kosovo of approximately 8%, the number of school age children in the official system was relatively small. The Albanian community represents 90% of the population, which resulted in a considerably larger number of school age children in the unofficial system.

The continuous clashes between the two ethnicities led to nearly half a million young Albanians being forced to leave the formal education system and join the underground education system: respectively 360,000 primary school students, 81,000 secondary school students and 30,000 students of the University of Prishtina, which was the only university in Kosovo at that time (Human Development Report, 2006). As a result of political deadlock, 23,000 Albanian teachers were expelled from their jobs, and as a result joined the underground system. The new underground system consisted of three levels of

education: primary, secondary and tertiary and was mainly financed through two sources: remittances from the Albanian Diaspora, and a 3% tax imposed on the Albanian population by the government in exile. Primary schooling still continued to be held in the official school buildings whereas secondary schools and the university held their classes in private houses given for usage on a voluntarily basis. The existence of such a system had symbolic power for Kosovar Albanians; however the quality of schooling suffered (OECD, 2001). The uneven quality of the newly established parallel education system between different classrooms settings directly affected the lives of young people; many did not acquire enough knowledge to continue to the secondary level and left education completely (Human Development Report, 2006). The parallel system, conducted in very poor conditions, did not seem as appealing to many Albanian pupils or parents, though it was the only chance for education in the Albanian language, which led not only to high student dropout, but also poor attendance and low levels of attainment. The primary school dropout rate calculated from the percentage of the number of students that completed the education level was 7%, but the impact on the secondary schools was much greater with a dropout rate of 34% (CEPS, 2000). There are no reported data for the university level. In this period primary school attendance was down by 12%, secondary schools attendance by 21% and university enrolment by nearly half (OECD, 2002). Attainment was not reported for any of the levels due to the lack of appropriate assessment instruments such as national exams.

### **1.2.3 Major changes in the education system**

The end of the conflict in 1999 enabled the Kosovo education system to enter a new phase though with major problems, such as a severely damaged infrastructure and a ‘traditional’ education system, which required major reforms. The parallel system was converted into the state system. According to the Human Development Report (2006) about 45% of schools suffered severe damage and a further 17% had some kind of damage. Rebuilding, refurnishing and re-equipping were the main characteristics of this emergency phase. The quality of education surely suffered as a result of these extraordinary circumstances. Ten years of isolation of the education system from Western practices resulted in a ‘traditional system’ which was characterised by many deficiencies:

an out-dated curriculum; poor learning resources and inadequately qualified teachers with no in-service training. The dominant teaching methodology was based on a teacher-centred model and assessment was purely internal to the class and/or school with no central government involvement. Apart from this, the decision-making in the education system was heavily centralised, with the Department of Education, which later developed into the Ministry of Education, Science and Technology, retaining control at school level, such as in the selection of school management and teachers.

The Thematic Review of National Policies for Education in Kosovo, carried out in September 2000 by the Organization for Economic Cooperation and Development (OECD, 2001) brought important recommendations on the pathway to the reforming process. The main areas under which these recommendations were categorized were: a) management capacities and policies; b) curriculum, standards and assessment techniques; c) teachers; d) early childhood education; e) vocational education and f) higher education (OECD, 2001). More specifically:

a) The measures to be taken and their priority emerged as a consequence of the immediate need for improving the existing infrastructure which had been damaged during the conflict. Another priority was the training of the key education policymakers and managers, more specifically increasing school management capacities and establishing an autonomous legal system with less control from the Ministry of Education, Science and Technology in the schools. As a result several initiatives were launched by various donors to improve management capacities through training and provision of in-house expertise.

b) The curriculum, standards and assessment methodologies suffered severely from the effects of the 10-year parallel system which had not allowed any improvement towards a better developed curriculum framework in line with Western practices. However, one must note that the development of an advanced curriculum framework takes time and, as explained below, the policymakers only managed to develop a national framework in 2011 and this is currently still being implemented in schools. There were no national standards or curriculum-based external exams until 2006. The assessment system is still going through a process

of continuous improvement and experts argue that current processes and structures still do not provide desirable outcomes, which will be discussed more in detail in section 1.3.3.

c) The pre-service and in-service training of teachers was only established after the conflict and this had to address the huge training needs, which had been neglected from 1990 until the conflict ended in 1999.

d) Pre-school education did not exist before the conflict and as a result a whole new system needed establishing in the municipalities.

e) The existing vocational education was largely theory-based due to the lack of equipment and infrastructure and therefore the re-introduction of practice-based lessons was of the utmost importance.

f) Higher education decision-making was viewed as being heavily influenced by political considerations and as a result a necessary first step was for the University of Prishtina to achieve greater autonomy from the government. In addition, the University needed to comply with practices in other European countries in terms of its credit system and quality control processes.

Initially, as a result of the numerous problems in achieving these reforms of the education system and based on the OECD recommendations, the United Nations Interim Mission in Kosovo (UNMIK) brought stability to the education system by forming a Department of Education which was a two-layered system at central and municipal level. At the municipal level two levels of the administration were introduced: Municipal Education Directorates and Education Development Offices. The role of Municipal Education Directorates (MED) was the maintenance of the education infrastructure such as school buildings, equipment, transport and textbook acquisition. The MED also administers the municipal education budget and manages education staff within the respective municipality. The Education Development Offices (EDO) oversee the general functioning and planning of the activities of the regional education offices in compliance with the Law on Primary and Secondary schools of Kosovo and central policies to be implemented in the respective regional educational institutions. Specifically the concern is with developing policies for the teaching and learning process, developing common

objectives for increasing student attainment in the municipality and inclusion of all children in educational institutions. In 2002, the Ministry of Education, Science and Technology (MEST) was established and it assumed responsibility for the education system in Kosovo. The MEST responsibility remains in development of policies related to main issues regarding education. The municipal EDOs were transformed in seven regional EDOs, taking responsibilities for few municipalities each.

#### **1.2.4 Initial steps to reforming the education system**

Support from the international community for the modernization of the education system and its development in line with developed countries addressed one of the post-conflict priorities. The first step towards education reform was development of the new education system in Kosovo which was initiated by UNMIK. Initially steps to reform the education system were focused on the infrastructure. During the post-1999 reform of the Kosovar education system, there were attempts to improve the infrastructure, introduce a new curriculum and new pedagogy, new pre-service and in-service training services, establish pre-school education and improve vocational schools in terms of better provision of practical skills. However, one must note that a major part of funding is still directed at infrastructure even in 2012 due to the prevalence of a three shift education system in some of the regions. Because of the large school-age children population and lack of sufficient school infrastructure, in many schools children attend in three separate groups throughout the day. The new curriculum was introduced in 2011 and it is still being implemented in to schools, assisted through various training programmes. Pre-service teacher training in Kosovo has evolved from a predominantly academic-based subject training programme to one with a stronger pedagogical content aimed at developing teaching skills and children's understanding. With support from the Canadian International Development Agency (CIDA), the Kosovo Educator Development Project (KEDP), and numerous other donor agencies and Kosovo-based organizations, a local capacity for delivery of in-service training programmes was established. Although there were many attempts to provide accreditation of the in-service training programmes it was only in 2011 that all training providers went through accreditation procedures. However,

there are many obstacles in motivating teachers to utilize the newly created system due to the fixed salaries system prevailing in Kosovo.

### 1.2.5 Description of the new education system

The reforms in Kosovo have strived to replace a ‘traditional’ system with one that is comparable to that found in most European Union countries. With the new Curricular Framework and intensive teacher training programmes new approaches to teaching and learning started being implemented. At the same time a new structure of 5 – 4 – 3 (4) years was set for the system of pre-university education in Kosovo and 3 – 2 – 3 for the university and post university education as presented in Table 1.1

**Table 1.1 The new curricular framework of Kosovo (2007/08)**

Description of Categories	ISCED 97 Categories	Age Group/ Level	Education levels in Kosovo
Pre-School	0	1-3 years 3-5 years 5-6 years	Preschool education (age 3 to 6 years)
Primary Education	1	Class 1 Class 2 Class 3 Class 4 Class 5	Primary education, 5 years (age 6 to 12 years)
Lower Secondary Education	2	Class 6 Class 7 Class 8 Class 9	Lower Secondary Education 4 years (age 12 to 15 years)
Higher Secondary Education	3	Class 10 Class 11 Class 12 Class 13	Higher Secondary Education, Gymnasiums and Vocational 3 years Schools, 3 & 4 years (age 15 to 19 years)
Post-Secondary, non-tertiary education	4	First grade studies	Postsecondary Vocational Education (age 19 to 24 years)
First phase of Tertiary Education	5	Bachelor	ISCED 97 definition (age 18 to 22 years)
Second Phase of Tertiary Education Third Phase of Tertiary Education	6	Master studies PhD	ISCED 97 was used to define this group (age 22 to 26 years)

### **The higher education system in Kosovo**

The tertiary system in Kosovo is going through a critical phase of reforms, aimed at the restructuring of the higher education institutions in conformity with modern European standards. Although Kosovo is not formally one of the signatories of the Bologna Declaration, the principles of the Bologna Process have been adopted since the academic year 2001/2002, according to which many university departments organized their studies based on the 3+2+3 system, incorporating the European Credit Transfer System.

Recently, Kosovo has gone through a substantial and unforeseen increase in the number of private higher education institutions. Thirty higher education institutions were established, of which 24 actively engaged in the higher education market (GAP, 2008). These private institutions are regulated by the Law on Higher Education (Regulation, 2002/2003) and the responsible authority is the Ministry of Education, Science and Technology. According to the Law private higher education institutions are allowed to carry out their activities but have to satisfy three criteria: have at least 3,000 students, at least five faculties and a research programme which leads to awarding diplomas at the doctoral level. The Government of Kosovo delegated responsibility to the British Council of Accreditation to accredit private higher institutions based on the Kosovo Law, international standards and the Bologna process (BAC, 2008). As a result 24 private higher education institutions went through the accreditation process. The three main criteria of the Law on Higher Education in Kosovo were not fulfilled by most of the institutions: only one had at least 3000 students and only one had research facilities, while none had five or more faculties. In addition to these criteria the British Council of Accreditation expressed the following concerns regarding the functioning of private institutions in Kosovo: the dependence of institutions on one or more key persons, a high proportion of part-time staff and the effect of these on staff commitment and the quality of education provided. They also noted the following: a lax attitude toward the issuance of academic titles; study programmes focusing on two specific subjects, Economics and Law; weak assessment and quality assurance systems and a lack of concern with low graduation rates (BAC, 2008).



The concerns expressed by the British Council of Accreditation caused the government to implement drastic steps: the cessation of student enrolment all private institutions for the following academic year, refusal to renew license and accreditation for all the private institutions. The British Council of Accreditation never formally recommended the closure of whole institutions; however it had recommended refusal of license renewals and accreditation which effectively would have prevented the institutions from accepting new students. There was a mixed reaction to the Government's actions; however, it is important to note that this has already brought some initial positive effects, with a new wave of cooperation and re-organization of private institutions. However, the overall effects of such measures will have to be assessed in the future.

#### **1.2.6 Basic facts and figures on the education system in Kosovo**

Currently, the education in Kosovo's schools is typically organized in two or three shifts, even though there have been continuous attempts to move towards a single daily shift. As explained briefly in the above section, the three shifts system leads to schools working with three separate groups of children of different grades. The first shift usually starts at 7 am and ends at 12 pm, the second shift is from 12 pm to 3 pm and the third shift starts from 3 pm to 7pm. The second shift is attended by first graders hence the shorter length. Usually the teachers work one or more shifts depending on their workload. There are two types of schools in Kosovo: central and satellite schools. The central schools are located in urban areas and as a result typically have large numbers of students, whereas rural school usually have fewer children. Satellites schools are organizational units of a central school which cover part of its catchment area, usually a village or a group of small villages. Such schools do not have any legal personality and are represented before authorities by their respective mainstream schools. Nevertheless, satellite schools are situated in separate buildings and each of them has a person who is responsible for its operation. This person may be an administrator or a head teacher who reports to the (mainstream) school principal. It is typical for schools located in sparsely populated areas

to consist of several satellite schools with a central mainstream facility. This is intended to lead to better resource utilization and staff allocation.

There are currently 1003 primary and lower secondary schools in Kosovo: 614 are central schools and 389 are satellite schools. There are 121 upper secondary schools in Kosovo: 100 central schools and 21 satellite schools. We present more details on the number of students and staff in Table 1.2. The number of academic personnel for the pre-school school level is 780 of which 477 are teachers, 65 administrative staff and 238 support staff. Of the 21,174 staff members in the primary level around 80% are teachers, and 20% are administrative staff and support staff. The upper-secondary schools students division between gymnasium and vocational schools is presented in the Table 1.3. The current student-teacher ratio for the primary level and lower secondary level is 17.7 whereas for the secondary level it is 19.6 (MEST, 2012). When compared to other countries the average ratio for the OECD countries is 24 (OECD, 2011). However, we also must take into account some specific characteristics of the education system in Kosovo. The pupil/teacher ratio is below the average of the OECD countries, however what remains a challenge is the uneven distribution of the teachers between different locations. A UNICEF report (2005) concludes that there are city schools with 40 pupils per class and there are rural satellite schools with just 5 pupils per class. However, data from the Education Management Information System in Kosovo (EMIS) indicate that the pupil/teacher ratios can go from 1 to 37.2 in rural schools compared to 29.9-31.1 in urban schools, which suggests that large disparities exist between rural and urban areas, but also within rural areas. In Table 1.4 specific teacher/pupil ratios are presented for a number of urban and rural schools to illustrate such differences (MEST, 2008). The teachers who work in rural areas frequently work in more than one school to ensure a full workload. Uneven teacher/pupil ratios also affect the pattern of expenditure on education which we discussed in the next section.

**Table 1.2 Number of students, staff and schools in pre-university education in Kosovo-(2011/12)**

Level of Education	Students	Schools	Staff
Pre-school	25,451	41	780
Primary and lower secondary	295,218	1,003	21,174
Upper-secondary	106,829	121	6,316
Total	427,498	1,165	28,270

Source: MEST, 2012

**Table 1.3 Number of students in gymnasiums and vocational schools in year 10-13 (2011/12)**

Schools	Year 10	Year 11	Year 12	Year 13	Total
Gymnasiums	14,514	14,612	16,314	1,756	47,196
Vocational schools	16,978	14,812	15,380	12,463	59,633
Total	31,492	29,424	31,694	14,219	106,829

Source: MEST, 2012

**Table 1.4 Pupil/Teacher ratios for selected urban/rural primary schools (2008)**

School type	School name	Pupils	Teachers	Pupil/Teacher Ratio
Rural	Ganimete Terbeshti	2	2	1
Rural	Ferhat Binishi	2	2	1
Rural	Liria	16	9	1.8
Rural	Aferdita	76	26	2.9
Rural	Perparimi	31	10	3.1
Rural	Haki Stermilli	409	11	37.2
Rural	Liria	1,654	50	33.1
Urban	Mihal Grameno	925	29	31.9
Urban	Ilaz Thaqi	1,567	52	30.1
Urban	Migjeni	1,792	60	29.9

Source: MEST, 2008

### 1.2.7 Education finance in Kosovo

The process of fiscal decentralization to the municipality level in Kosovo has also impacted on education financing. With the adaptation of the Law on Local Government Finance (LLGF) (Regulation, 2003/L-049) education funding was also distributed to the municipality level. The funding of state education in Kosovo is via a three tiered system:

education grant, donor's grant, and own source revenues which include property tax and administrative fees. The size of the education grant and own source revenues is €77 million which is about 60% of all the funding going to the municipalities, which apart from Education Grant includes Municipal and Health Grants. There are no central data available on donor's funds since such funds do not go through the governmental treasury system. Education grants are based on four elements: teacher costs, other personnel costs such as administration and support staff, goods and services, and capital outlays. The teacher's costs are calculated based on the number of students in the municipality and that is divided by pupil/teacher ratio which changes from year to year and for the 2011/2012 was 17.7 for primary education and 19.6 for secondary education. The funds available for the administration and support staff are allocated according to a salary and wages scaling system for all the public servants. Goods and services are calculated based on a fixed amount of 500 Euros per school and 20 Euros per student. Capital outlays consist of 5 Euros per student.

Until recently donor grants were allocated based on the donor's independent analysis of needs. However, in the last two year the European Commission launched a Sector Wide Approach Programme in education which strives to bring all the funds and programmes in the sector of education together. As a result externally funded initiatives in education have become more coordinated, even though there is still a lot to be done in order for the sector to work efficiently as a whole. Own Source Revenues is usually the money which is gathered from various taxes by the municipality. These revenues are available for municipality expenditures in general but most of the times a part of such funds are allocated to education.

The Ministry of Education, Science and Technology, in close cooperation with the Institutional Development Education Project funded by World Bank, has introduced an extended improved intergovernmental education grant formula and municipal to school level formula that takes into account criteria that were not included previously. MEST and IDEP/WB established a working group on funding formula that consisted of different stakeholders such as: MEST and MEF representatives, pilot municipalities'

representatives and other independent education finances experts. In particular, the formula for the allocation of central government transfers to municipalities was revised following the enactment of a new Law on Local Government Finance in April 2008. The pre-university state education funding formula (central to municipal level) was revised with new criteria introduced such as:

- inclusion of maternity leave funding;
- division of education figures for pre-primary and vocational secondary from primary and secondary (previously included in primary and secondary);
- reduction of pupil/teacher ratios for pre-primary and vocational schools;
- minimum criteria for maintaining small schools, with schools' lump sums given to main schools only in order to stop the opening of new satellite schools (previously there was an incentive for municipalities to open new schools with a few pupils just to gain 1000 euro per satellite school);
- the distribution of the teachers across the different remuneration scales
- extra teaching staff for schools in mountainous regions.

A formula for municipal to school education financing was piloted for the first time in 2008. The calculation of the individual school grants was based on the demographic and geographical characteristics of the three pilot municipalities chosen which were: the Istog, Kacanik and Gjilan municipalities. In addition to the government funding the new pilot municipalities received additional funding from the World Bank. After initial training on budget planning the managing staff of the pilot municipalities, school directors, finance officers and school committee members were also trained in budget execution and monitoring. The initial difficulties faced by the municipalities were a lack of staff expertise in financial management at school level, more specifically a lack of school accountants, which led to the school being dependent on the municipality's finance staff. Funding was devolved to all the municipalities in January 2011; however schools have still not managed to function independently from the municipalities due to a continuing lack of staff expertise.

The size of public expenditure on education as a proportion of GDP in Kosovo is

comparable to that in the neighbouring countries in the Balkans. Indeed, when we compare to countries such as Albania, and Serbia and Montenegro it is higher. However, it should be noted that the school population in Kosovo is greater than the other neighbouring countries, since about 28% of the population is under 15 without including the schooling population age group 15-18 which is claimed to be about 8% (Statistical Office of Kosova, 2012). As a result expenditures per student are lower than in other Balkan countries. The data is presented in the Table 1.5.

**Table 1.5 Public expenditure on education as a percentage of GDP and Public Expenditure (2007)<sup>1</sup>**

Country	As percentage of GDP	As percentage of Total Public Exp.
Albania	3.2	10.3
Bosnia	5.9	11.3
Croatia	4.5	8.7
<b>Kosovo</b>	<b>4.6</b>	<b>14.0</b>
Serbia and Montenegro	2.8	6.4
Slovenia	6.9	14.6

Source: World Bank ECA Fiscal database; Kosovo MFE

Global Education Digest 2006, UIS Data Centre, June 2007, <http://www.unesco.org>

Overall, the continuous reforms in education in terms curriculum, teacher training, vocational education, pre-school education and lack of sufficient education financing have had a direct impact on the quality of schooling provided in the post conflict years. These changes affected the education system concurrently with the EPIPII project that will be evaluated in this thesis.

### **1.3 School dropout, attendance and attainment in Kosovo**

Before we discuss school dropout, attendance and attainment with reference to Kosovo first of all we define such terms for the purpose of our research. Generally in the literature, a school dropout is defined as someone who does not continue in education for reasons such as: left school, transfer or major illness. In this research we have defined the dropout rate as the number of students who no longer continue in full-time education. In conjunction with term dropout we will also utilize the word participation which will be used as an antonym for dropout. While the term participation is quite broad, we

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<sup>1</sup> No government or international body data is available for the expenditure per pupil in Kosovo

acknowledge that in education it may more often refer to the post-compulsory level, but using it in this broader manner will assist us in distinguishing from attendance which we will also study in this research. Attendance is defined as the proportion of time in scheduled lessons during the year of those who are registered students. Attainment deals with student achievement at given level(s) of schooling and the measurement is discussed further in section 1.3.3.

### **1.3.1 Dropout**

The above post-conflict analysis of the education system in Kosovo suggested that there are major issues that need attention by the policymakers. The high rates of student dropout after the conflict suggested that it is still one of the major problems in education. However, throughout the years little attention was given to examining the dropout issue even though it was continually mentioned as an important issue. The OECD indicated that after the conflict only 80% of the 7-15 age cohorts were in school whereas amongst the 16-18 age groups this dropped to 37% (OECD, 2000). However, the only follow-up study undertaken in this field was conducted in 2009 by Riinvest Institute. Acknowledging the high dropout rates, the Riinvest analysis suggested that there are other issues that have to be taken into consideration when working with dropout data. The problem arises from the data, since the Ministry of Education, Science, and Technology does not impose consistency across schools in the definition of dropout. Kosovar schools also have failed to adopt a common categorization of the different types of student behaviour such as: the internal migration of the students between the different schools, or external migration to different countries. However, there are initiatives that have aimed to improve the dropout rate and we discuss these in section 1.3.4.

### **1.3.2 Attendance**

Attendance in Kosovo schools was also low with an absence rate of 12% for the primary schools and 21% for the secondary level (OECD, 2001). Even though it has been claimed that there have been some recent improvements, there are no recent documented official calculations of the attendance. Attendance data are recorded in schools at cohort level only, as collecting student level attendance data is deemed too expensive for a post-conflict country such as Kosovo. Apart from that, initial investigations undertaken for

this thesis suggested that there is under-reporting of the absences at the primary school level and we discuss this issue in detail in section 5.4. In general, there are no studies in Kosovo that have investigated absenteeism rates. This research therefore represents an original contribution to knowledge and can inform policy makers as to the possible problems and solutions related to pupil attendance.

### **1.3.3 Attainment**

As discussed in the previous sections of this chapter the conflict in Kosovo led to a complete stagnation of the education processes and this severely impacted the quality of education provided. According to the Human Development Report (2006) the underground system had many deficiencies and eventually led to a relatively low quality of education. One result was that there was very little or no data on education outputs. Data unavailability led to lack of measurable instruments of the educational outcomes within Kosovo and comparisons of the educational attainment with other developed countries are still difficult today.

The measurement of educational outcomes in terms of student attainment remains one of the major schooling issues for Kosovo schools. Until recently, attainment was measured only through the years of education completed. The existing data suggest that attainment data were only available from the Civil Registry which took place in 1981 (OECD, 2000). Attainment was measured as the average number of years of education and it suggested that for Kosovo the average number of years of education was about 7 for the population over 15 years of age. Later estimates (UNDP, 2004) suggested that the average education attainment as measured by the duration of schooling is about nine years. Even though some quantification of attainment exists one must emphasize that these figures are not official estimates by the appropriate authority in Kosovo. Individual attainment was measured in schools through internal grading only; it was only after the conflict, in 2006, that national exams were gradually introduced into the education system. The assessment of the attainment of grade 9 and 13 (Matura) pupils are now undertaken every year; though these exams still need further development in terms of their content and attainment targets. There are no defined attainment targets for each



grade that student must attain and as such the content of the exam has been questioned by many experts. Educational attainment in Kosovo is only measured based on national assessments since Kosovo is still not part of the international assessment studies such as: PISA(Programme for International Student Assessment), TIMSS (Trends in International Mathematics and Science Study) and PIRLS (Progress in International Reading Literacy Study). There are no previous studies that have studied attainment in any form or depth in Kosovo. As a result measuring the impact of school development grants on attainment has novelty in Kosovo. The present study will also make a contribution to the appreciation of the problems faced while doing this kind of research in other developing economies.

#### **1.3.4 Interventions to lower dropout and improve student attendance and achievement**

##### ***EPIP I***

The World Bank funded the Education Participation Improvement Project (EPIP I) between 2003 and 2006, which provided financial incentives to schools and municipalities to take part in activities that helped lower dropout and improve attendance and attainment. EPIP programme provided schools with in-house expertise and training to empower planning with all relevant stakeholders. The programme also assisted municipalities in increasing capacities when working with existing budget which was received from the central government in the form of grant. Participating schools prepared three-year school development plans which served as a tool for whole community rather than the school only. Following the preparation of the school development plans schools are prepared proposals related to priorities set in the plans.

Over 500 primary and secondary schools benefited financially to the amount of 5,000 to 15,000 Euros. The priorities of the spending in the first phase were initiatives that led towards improved access. By improved access it was meant replacement of the infrastructure which was damaged. The evaluation (MEST, 2006) of the first phase of the programme concluded that the lack of quantitative data did not allow an empirical

analysis of whether the programme was successful or not. This evaluation suggested that these types of programme are beneficial and should continue in the future. We discuss this evaluation in more detail in section 4.6. The EPIP II programme was a continuation of the EPIP I implemented in 2008 and whose main focus was to improve the quality of education by lowering dropout rates, improving attendance and attainment in Kosovo schools which we discuss in more detail in section 4.4.

## **1.4 Towards improved access**

In 2008 Kosovo government's policy and priorities were declared by the Kosovo Prime Minister as the three 'E's' which stand for Education, Energy and Economy. By ensuring increased access for all the groups of Kosovar society to education, the government intended to directly support the desired increase in the level of human development in Kosovo and also contribute to building a society based on equality, diversity and tolerance. Improving access to education has been one of the priorities of the government and it is strongly supported by the donor community in the field of education. Such strategies specifically target the most disadvantaged groups, such as the Roma, Ashkalia and Egyptian communities.

### **1.4.1 Pre-university strategy and the Roma, Ashkalia and Egyptian (RAE) strategy on access**

The strategy for pre-university education (MEST, 2007) reports that Kosovar institutions have done a lot in increasing access and inclusion and this was due to a 'new reality' built after the conflict and the strong support of the international community. In order to improve access the government drafted this strategy for pre-university education with the vision of building an 'inclusive education system' that offers quality education and training for all individuals by promoting lifelong learning habits and values of democratic citizenship (MEST, 2007).

According to this strategy Kosovo undertook to ensure universal access and inclusion of children at pre-university level in the education system, providing conditions for children to learn in not more than two shifts in all schools in Kosovo. It also commits to increase by seven times the proportion of children of 0 to 5 years of age in pre-school education,

promises to include over 90% of children of age 5-6 in pre-primary education, and also undertakes to include all teachers in high quality and accredited programmes for professional development. The whole strategy builds on the following principles: usefulness, benefit and philanthropy; openness, transparency and flexibility; monitoring, follow up, measurement and evaluation; effectiveness and efficiency: justice and participation in education; order and creation of stability; a holistic – systematic-approach; national interest (MEST, 2007).

One of these principles that tackle participation and access is that of justice and participation in education which requires the creation of a system of education in Kosovo which would enable all citizens' equal opportunities to choose their preferred type of education. This principle calls for quality education to be provided to all citizens of Kosovo. It also underlines the need for promoting and creating education opportunities for all students, regardless of their developmental potential, age, gender, religious, racial, and ethnic affiliation, or their social status. The strategic objective on inclusion has the following targets: by 2017 the ground should be set for all children to be included in compulsory education; and 35% of age group 0-5 be included in some form of pre-school education; likewise, at least 85% of the respective age-group are included in programmes of upper secondary general and vocational education and training; at the same time 30% of the Kosovar children that live abroad will be offered supplementary education through provision of the textbooks from the home country; and various programmes are provided to support the return of adults in the system of education.

Another document aiming at the Roma, Ashkalia and Egyptian communities is the Roma, Ashkalia and Egyptian Strategy (RAE) 2007-2017. The strategy aims to build a high quality and inclusive system of education, based on justice, equity and respect for diversity, contributing to the full integration of Roma, Ashkalia and Egyptian communities in society. The strategy aims to achieve this through: a significant improvement in access and quality of education for members of the Roma, Ashkalia and Egyptian communities; prevention of discrimination and segregation in the system of education; meaningful and efficient cooperation between relevant institutions and

organization serving for improved education of Roma, Ashkali and Egyptian communities; increasing awareness among involved parties of the need to support the education of members of Roma, Ashkali and Egyptian communities.

Both strategy documents serve as roadmaps for the development of pre-university education; however since 2007 the implementation of the strategies has lagged behind the stated schedule, primarily due to a lack of sufficient funding which is common in post-conflict countries such as Kosovo. As a result prioritisation was given to achieving the objectives in the pre-university education concerned with infrastructure, with alternative activities being left for other possible donors that were interested in investing in the education system.

While we see the initial developments taking place with drafting of different strategies that will lead the Kosovo education system towards improved access and attainment, we fear that the implementation of these strategies is progressing at a slower pace than envisioned, therefore more effort and commitment is required in support of the strategies which have been approved by the Kosovo government. The access of disadvantaged groups such as the Roma, Ashkalia, Egyptian communities is still limited because of insufficient mobilization and efforts of the government authorities, limited government and donor funds, lack of sufficient awareness raising campaigns on the importance of education, and lack of initiatives advocating and lobbying on issues pertaining to minority rights. All these factors have led to only a partial inclusion of the Roma, Ashkali and Egyptian communities in Kosovo. It was it only in 2011, with technical assistance from the European Commission and the Soros Foundation that the RAE communities received funding to improve access, specifically scholarships, but a lot remains to be done.

## **1.5 Conclusion**

This initial review of the education system suggests that Kosovo has still a long way to go in improving the quality of education to the level generally found in the EU. As such Kosovo is lagging behind in studying some potentially important factors which may

impact on quality such as: student dropout, attendance and attainment. Therefore this current research has novelty; it will examine current evaluation practices and derive recommendations for policy makers. With any path-breaking research there are problems which may not be able to be fully addressed, however in raising awareness and developing better practices progress can be made towards a more effective evaluation of current policies and future policy interventions.

Before we examine current evaluation practices and their impact on dropout, attendance and attainment rates, in chapter 2 the theory of education decision making with reference to attendance in compulsory and non-compulsory school education is reviewed critically.

## CHAPTER 2 THEORY AND EVIDENCE OF EDUCATIONAL DECISION-MAKING IN COMPULSORY AND POST- COMPULSORY SCHOOL EDUCATION

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## **2.1 Introduction**

After discussing recent major developments in the education system in Kosovo and introducing pupil dropout, poor attendance and attainment issues in the previous chapter, we now continue our discussion with a critical review of the theory and evidence of school participation (dropout), attendance and attainment issues in compulsory and post-compulsory education that will provide a basis for the later empirical chapters. The discussion in section 2.2 begins with an overview of the theoretical approaches to household educational decision-making, primarily economic, sociological and psychological approaches, and a consideration of the appropriate unit of educational decision making with special emphasis on the Kosovar educational decision-making process. Section 2.3 continues with an examination of the human capital model with reference to educational participation, and some of its limitations. In section 2.4 we introduce the education production function approach taking the school as a production unit and we continue in section 2.5 with a discussion of the implications of these approaches for model specification of student dropout, attendance and attainment in a country such as Kosovo. Section 2.6 reviews the theory of policy evaluation, providing an overview of the underlying approaches behind this and briefly examining the methods utilized to carry out such evaluations. We continue with section 2.7, which investigates the existing empirical evidence on the determinants of school participation, attendance and attainment. The final section 2.8 concludes our discussion on the theory and evidence of these aspects of educational decision-making.

## **2.2 Alternative theoretical approaches to educational decision-making**

The decision to study is a complex phenomenon influenced by social, cultural, psychological and economic factors. Participation in education is seen as a way of generating human, social and cultural capital in the form of knowledge and skills for the individual that are acquired and developed through schooling and training. While economic theory has emphasised the importance of the human capital development, the sociological explanations of educational decision-making stress the importance of social and cultural capital. Bourdieu (1986) argues that the structure and functioning of the social world is inexplicable if we do not recognise the importance of each of these forms

of capital. Human capital refers to the skills and knowledge of a person and is usually defined through three components: innate ability, qualifications and knowledge and skills that are acquired through education and training. Social capital can be defined as the aggregate of actual or potential resources of an individual as a part of a social network, as well as connections between individuals that lead to development and enhanced productivity of individuals and groups. Cultural capital refers to cultural habits and dispositions which generate returns for a particular individual, partly dependent upon their social class and they are frequently transmitted from one generation to the next one (Lareau and Weininger, 2003).

We now examine these economic and sociological theories which attempt to explain these areas of decision making in education.

### **2.2.1 An overview of the economic and sociological/psychological approaches**

Economic theory looks at educational decision-making from the perspective of human capital theory which views education as a way for the individual to generate, accumulate, and maintain their human capital, enhance actual productivity and therefore lead to higher earnings and future returns (Becker, 1985). Although the concept of human capital was known from Adam Smith's writing in the eighteenth century, it was only incorporated into mainstream economics in the 1960s.

According to neoclassical theory the educational decision is primarily a reflection of an individual's choice. Individuals are faced with decision making about resources which according to economic theory are scarce. Therefore they try to efficiently allocate them by comparing the costs and benefits of expenditure, such as on education, at the margin. The costs and benefits of education are hard to measure: one way to examine the costs and benefit of education is through calculating the internal rate of return on educational investments (Pscharopoulos, 1995). If the expected internal rate of return adjusted for risk exceeds the rate of return from other investment opportunities then that additional education should be undertaken. Individuals invest in schooling up to the point where the



present value of expected marginal benefits equal the marginal costs from taking one more additional unit (typically a year) of schooling.

“Education is considered one-shot investment expenditure, a unique rather than a repetitive purchase” (Belfield, 2000, page 49). It follows that a number of uncertainties are associated with educational decision-making. First, “individuals may have imperfect information on their ability to absorb, understand and apply the education they receive” (page 49). Education can produce multiple outcomes and most individuals may be risk averse when investing their time and money. Lack of the information on their ability increases an individual’s uncertainty when facing a decision whether to undertake additional post-compulsory schooling, even though ability may be to some extent filtered by enrolment or application tests. Second, education is typically a big and indivisible investment and hence capital constraints may affect investment decisions in schooling. Individuals that are risk averse may also under-invest because education is a long-term investment with returns generated across the whole working life. A final element of risk is that individuals do not have information on future demand for and supply of educated labour and because human capital cannot be sold or, in most cases, contracted in futures markets its value in the market may decline.

It follows that vulnerable groups such as marginalized and low income groups who face poorer job prospects are less likely to participate in compulsory and post-compulsory schooling. Such groups, in addition, are more risk-averse and lack sufficient information on the returns from education. As a result, they develop a myopic behaviour where they value current income more than future income (Machin and Vignoles, 2005).

Bourdieu (1986) argues that human capital theory, as explained by economists provides, at best, only a partial explanation of educational decision-making. The economic approach concentrates upon monetary investments and returns, or those directly convertible into money, such as the costs of schooling and the cash equivalent of time devoted to study. The sociological approach points out that human capital theory does not address fully the different proportions of their resources which different agents or

different social classes allocate to economic and cultural investment. The economic approach also fails to take systematic account of the different returns which the various markets offer these agents or classes, which sociologists see as a function of the volume and the composition of their assets (Bourdieu, 1986). The sociological approach argues that it can enhance the economic approach through the addition of two fundamental forms of capital, known as social and cultural capital.

Individual social capital can be established through an application of a common name of family, class or school and by a whole set of social and behavioural norms which are designed to be used in their communication (Bourdieu, 1986). Bourdieu explains three forms of cultural capital: personal cultural capital, cultural capital in the form of goods and institutional cultural capital. Personal cultural capital is identified as a skill or competence that the person holds; for example, speaking more than one language is highly valued in some institutional settings and therefore it is a personal capital. Cultural capital in the form of goods includes books, dictionaries and pictures. The institutionalized form of cultural capital is where cultural capital is built through formal education. Cultural capital can be acquired depending on the period, society and social class, in an unconscious manner (Bourdieu, 1986). The educational decision depends on the prior social capital invested by the family and the economic and social returns depend on the inherited social capital.

Bourdieu's (1986) arguments that social and cultural capital complement the theory of human capital seem to remain rather generalized and do not fully explain how these forms of capital affect an individual in making their educational investment. Bourdieu argues that there is more to educational decisions than just the accumulation of human capital, but he fails to explain how these concepts would apply in the educational decision-making process.

Coleman's (1990) definition of social capital gives a broader explanation of the concept because he views social capital as resources that help the cognitive and social development of a child: the social environment will affect the schooling decision. This

social environment includes personal, community and family dimensions such as socio-economic status, ethnicity, number of households, mother's education and occupation. Garasky (1995) studies these sociological aspects through socialization theory where the emphasis is put on parental ability to provide children with motivation and skills. Socialization theory emphasizes the transmission of societal norms during childhood and adolescence within society's three major socializing agencies: family, school and small, intimate peer groups. Nurco and Learner (2000) argue that norms may be pro-social or deviant. Pro-social norms are defined as norms, widely accepted by society, which lead to better social welfare, for example adapting the norm of a high level of student attendance would be a pro-social norm. Here the pro-social norms transferred through socializing processes will emphasise the importance of school participation and adverse consequences from absenteeism which is a widely, but not universally, accepted societal norm.

Bertrand (1962) examines schooling decision-making behaviour initially by looking at the social systems and studying the behaviours within that system. The social system examined is based on the Loomis (1960) model and consists of the following elements which are crucial to a well-functioning social system: belief, knowledge, sentiment, objective, norm, status role or position, rank, power, sanction and facility. The social system functions through the interaction of the above mentioned elements and when one of these elements contributes to achievement of the social needs it is categorized as functional, whereas when it obstructs the process it is labelled as dysfunctional. Bertrand identified school and family as two social systems which interact with each other: a school is related to the national education system and a family to its respective community and school. The schools and families whose behaviour is consistent with goals of higher participation and attendance rates can be defined as functional to the social system. According to this approach a family as a social system sets its internal procedures for its members. Therefore if a family sets school attendance and participation as a functional action they would ensure that their children attend school regularly and when the family has set dysfunctional values then it is easy to understand why a child would be more likely to be often absent or drop-out. In such a case, the interaction

between family behaviour and that expected at school frequently contradicts and in such situations the behaviour of children usually corresponds to the behaviour and norms of their family rather than the school when making their schooling decision.

Psychologists such as Bandura (1990) explain that educational decision-making can be affected by the ‘locus of control’ of the individual. Locus of control studies the relationship between individual behaviour and its own consequences. According to Maddux (1991), individuals who believe that outcomes come as a consequence of their effort have an ‘internal locus of control’, whereas individuals who believe that the outcomes come as a result of luck have an ‘external locus of control’. Coleman et al. (2003) introduced the locus of control into the human capital investment model. They investigate the impact of the locus of control by allowing an individual’s assessment of the relationship between the probability of labour market success and her/his level of human capital investment to depend upon her/his internal-external outlook. They incorporate the locus of control model into the human capital model and their empirical results suggest that an eighth grader’s locus of control has a strong impact on a teenager’s human capital decision. Their results suggest that teenagers with an internal locus of control would be more likely to make educational investments. Thus, individuals who believe that they have no control over the outcome of situations are less likely to participate in post-compulsory schooling, even in situations that provide many such opportunities for them (Bandura, 1990).

The discussion above implies that the sociological, psychological and economic approaches all provide important insights into school attendance and participation issues.

### **2.3 The Human Capital approach to educational decision-making**

In orthodox economic theory, education is seen as a way of enhancing human capital. There is set of attributes and characteristics that together constitute human capital, such as: innate ability, knowledge and qualifications gained through formal schooling and skills gained through training. According to human capital theory, these generate higher workers’ productivity and hence earnings. The impact of human capital on earnings has

been recognized since Adam Smith but its formalization started in the 1960s with Becker (Marvel, 2012). Acemoglu (2011) distinguishes between different ways of conceptualising human capital, compiling the following list:

- a) The Becker view: According to Becker human capital directly increases productivity. Human capital is one-dimensional such as stock of knowledge and skills.
- b) The Gardener view: This view treats human capital as multidimensional since there many dimensions to skills. For example, mental and physical abilities differ across skilled workers.
- c) The Schultz/Nelson/Phelps view: Human capital is predominantly viewed as the capacity to adapt in changing environment.
- d) The Bowles/Gintis view: According to Bowles/Gintis human capital represents the capacity to work and adapt in a hierarchical society. For example, school is a place where the dominant ideology is instilled and individuals prepared to fulfil their allocated role in the hierarchy.
- e) The Spence view: here the observable measures of human capital are signals of ability rather than of knowledge and skills.

Comparing these various human capital ways of thinking the most important common propositions of human capital theory are that: investments in education increase higher worker productivity; the increase in worker productivity leads to higher earnings and that the individual decision-maker compares the anticipated returns from investing in additional schooling with the direct and indirect costs of investing in education. We discuss in more detail below.

### **2.3.1 The Becker model – implications for attendance and participation decisions**

Becker (1975) specifies the basic assumptions of the human capital approach to be individual maximizing behaviour and market equilibrium. The Becker model identifies schools as institutions that are specialized in the production of human capital. This model is based on the assumption that the student will not engage in work while in school, but may do so after school or during leisure time, which generates indirect costs of schooling

in the form of foregone earnings and the value of the foregone leisure. However, a student will also incur direct and other indirect costs while schooling. Direct costs are recognized as tuition fees, books, supplies and transportation. These costs may be partly offset by scholarships and grants.

Within the human capital framework it is assumed that the individual invests up to the point where the discounted future expected returns from an additional unit of schooling outweigh the costs of undertaking that education. Within this broad framework, Mincer (1974) derived an expression to explain the pattern of individual wages. His earnings function expresses the earnings-education relationship for an individual  $i$  as follows:

$$\ln Y_i = \alpha + \beta S_i + \chi E_i + \delta E_i^2 + \phi X_i + \gamma Z_i + u \quad 2.1$$

where:  $\ln Y_i$  is the log of earnings of an individual;  $S$  is years of schooling,  $E$  is years of experience, a proxy for post-school investments in human capital,  $E^2$  is a proxy for the depreciation of human capital and age-decreasing investment in human capital.

In this earnings function the coefficient  $\beta$  measures the incremental wage change from an additional unit of schooling which we refer to as rate of return to education. Assuming that the rate of return to schooling is independent of the number of years of schooling then  $\beta$  serves an estimate of the rate of return on schooling.

Mincer's earnings function represents two separate economic concepts:

- a. A pricing equation which shows how labour market values attributes such as schooling and working experience and
- b. The rate of return to schooling which is comparable to the interest rate so that the optimal levels of human capital investments are determined

However; this framework does not into account educational wage differentials and the relationship between earnings, experience and schooling which vary over time (Heckman et al., 2003).

The private rate of return to schooling, i.e. the increase in individual earnings resulting from an additional year of schooling, has been estimated to be about 6–10% in developed economies (e.g. Card, 1999). However, human capital is not a liquid asset and its ownership cannot legally be transferred, hence it is therefore poor collateral for a loan. As a result it is likely that individuals face constraints on their ability to borrow to fund investments in education and training. This may particularly affect poor families who do not have recourse to own funds. In addition, the actual return from education is difficult to estimate and as such there is information asymmetry as people do not know what they will gain. Again poorer families may be less able to bear such risk.

There may also be heterogeneity in the rate of return reflecting differences in the quality of schooling and ability of the student. For example: students educated in schools with higher quality are likely, other things being equal, to experience higher rates of return to additional years of schooling compared to other students (Card and Krueger, 1992). Similarly, the more able students are likely to experience higher returns than the less able. This suggests that there is heterogeneity in across and within groups (Henderson et al., 2011). Finally, risk-averse individuals may be reluctant to invest in more years of education due to the uncertainty attached to the returns. Taken together these factors mean that individuals are uncertain about their optimal investment in schooling, whilst financial institutions may be reluctant to make loans for that investment. These schooling market failures can lead to chronic under-investment in schooling, in section 2.7 we argue that this possibility is more likely in developing countries. The human capital framework itself faces limitations which we discuss in the section 2.3.2 below.

### **2.3.2 Limitations of this model**

Much debate has concerned the implications of the human capital model. While this model is well established in the field of economics, many authors argue that some of its key assumptions are inappropriate. Card (1999) points out that there is correlation between generations in education: parent and children; parental aspirations and their choices about their child's educational career involve subtle psychological and

sociological aspects not easily squared with a simple investment approach to education choice (Higgins et al., 2008), which related back to the discussion in section 2.2.1.

Belfield summarizes such limitations as follows: first, the individuals, according to the human capital model, are risk neutral whereas the reality is that many are risk averse to taking more years of education or committing to additional years of post-compulsory education. Second, the assumption is that returns to education are uniform and do not vary among individuals. Third, human capital functions are assumed to be homogeneous without taking into account the different quality of human capital. Finally, individuals are assumed to work without intermittence, even though this might not be the case as leisure is a normal good and may increase with education as well as unemployment and non-participation.

According to the human capital theory the output from education is higher productivity, which leads to higher future earnings (Schultz, 1961, Becker, 1975). Employers have imperfect information about the capabilities of the potential employees; therefore they may use education as a screening tool when hiring. Thus, educational attainment may be used as a proxy for potential future productivity. Firms do not have perfect symmetric information about their actual and potential employees' labour and therefore may end up choosing lemons rather high ability workers and thus the need for sorting arises. The sorting hypothesis assumes that education acts as an effective signal and screen for future potential productivity. The Spence (1973) model explains how the signalling effect works. The model distinguishes between high ability and low ability workers. Employers are willing to pay wages based on the information they have on the productivity of potential employees; so if there is no available information employers will only pay a wage based on average marginal productivity. Thus, high ability workers will be prepared to invest in a signal that indicates to firms their higher potential productivity. Such future workers may do so by choosing a particular education programme so they can signal their attributes, whereas, firms may choose only certain levels of educational attainments or certain institutions when hiring in order to do so that they can better screen in potential high ability applicants (Sessions and Brown, 2005).



Potential employers may use education to screen the potential employees in the first stage of the employment and utilize weak or strong strategies in this respect. The weak screening strategy implies that the employees are obliged to have a probationary period whereas with a strong screen the employers commit to pay more the more educated individuals. Johnes (1993) argues that screening plays a role in increasing efficiency because it is assumed that educational attainment indicates if workers are going to high or low productivity. However, the signalling model implies that education may not be socially efficient since schooling serves no socially useful purpose and there are likely to be cheaper screening tools, such as IQ and psychometric tests, than investment in post-compulsory screening. Layard and Psacharopoulos (1974) come to a conclusion that it is not possession of the schooling certificate but it is rather the training received in the process of preparing for the certificate which can enhance future earnings. Human beings are not all born with abilities which are relevant for the market; therefore it may not be education as such that predominately generates the wage differential but rather innate ability (Johnes, 1993).

Asymmetric information and changes in the pattern of demand in the labour market can lead to the occurrence of over-education, where workers receive low or negative returns to their investment in schooling (Belfield, 2000). However, for a developing country such as Kosovo with very high unemployment, over-education does not appear to be an issue. In Kosovo having a degree considerably improves the chances of employment (Riinvest, 2004).

### **2.3.3 The appropriate unit of decision-making**

The discussion of the human capital model above was in terms of an individual's decision. However, schooling decisions are for children. The dominant approach to decision making in microeconomic theory is the household model which is derived from Becker's model which treated the household as having a utility function. According to Becker (1965), households combine time and market goods to produce additional basic commodities that directly enter their utility functions. He looked at the households as

both producers and consumers, producers of commodities by combining inputs of goods and time as efficiently as possible. However, Chiappori (1992) identifies two models of decision making: the traditional (unitary) household which is based on Becker's household model and collective household models. We examine below the traditional and the collective models and discuss the appropriate model for educational decision making in compulsory and post-compulsory school education in the Kosovar context.

Households have different features such as size, age composition and educational level (Deaton and Muellbauer, 1980). The traditional household model looks at the household as a single entity; therefore the individual resources brought into a household are treated as joint resources. This standard unitary model considers the household as the basic unit of decision making; therefore it is impossible to divide individual family member's preferences or the parameters of the internal decision process that determines the distribution of utilities and observed outcomes. In this approach the internal decision-making process of the family is not explicit, since this model looks at the household as a single entity. The household has preferences as a whole, and household resources, such as capital, labour, land and non-labour income, are pooled and therefore expenditure is covered by the pooled income.

The main critiques of this approach are that this theoretical framework is restrictive and it has been contradicted empirically (Chiappori et al., 1998). The traditional approach does not take into account the strategic behaviour of different household members to raise their own consumption; it is just one utility function for the household. Most households do not pool their income but make different arrangements such as: one person manages all the finances, finances are distributed based on the expenditures made by them, for example the wife will spend the money for the family and children or each individual spends their personal income. Such arrangements then lead to a differential in the funds received by them because the income is not pooled accordingly to each household member (Chiappori et al., 1993).

This critique has led to the development of the collective model, which still views the household as the elementary decision-making unit, but looks at each individual separately and recognizes their individual preferences. The utility of each member here depends on their own consumption and labour supply. This collective approach considers that decision making is the result of bargaining and negotiation instead of assuming that 'household' utility is socially optimal for members as a whole. This makes it more complicated than the traditional household model (Chiappori, 1992). There are two types of collective models: cooperative and non-cooperative. The non-cooperative approach assumes that individuals cannot enter into binding and enforceable contracts with each other. In the cooperative approach individuals have a choice of remaining single or forming a household. The household decisions are the outcome of a bargaining process and are modelled by applying a cooperative game theory method. The approach argues that the cooperative decision-making process should have Pareto efficient outcomes; therefore a main assumption is that the household will not choose a decision that is Pareto dominated (Haddad et al., 1997).

Pollak (2002) argues that the collective model of Chiappori suggests an efficient "sharing rule" which does not derive from an underlying model of family or household collective choice. This sharing rule is affected by income pooling and intergenerational resources and depends on who is earning income. In the case of an educational decision, the sharing of resources will depend on how the household treats schooling and whether it is included in the fixed expenditures. In most cases, compulsory schooling could be seen as a part of basic household expenditures. However, post-compulsory education of the household members would be affected by who is earning income. He also emphasises that collective models of intergenerational relations assume that the number of children, their education and earnings are exogenous, and he stresses that the proposition that child quality and quantity are the outcome of parental decision-making is ignored in empirical tests of these models. However the evidence suggests that there is a trade-off between the quantity and quality of children especially in developing countries. An increase in child quantity has been estimated to reduce the probability of a child being enrolled in schooling by four percentage points in developing countries (Li and Zhang, 2005).

Schultz (1997) suggests some characteristics that hold for both household utility models. First, apart from the income constraint there is also a time budget constraint because some of a household's labour market activities are constrained due to the inability to combine work activities with child care, especially for mothers. This suggests gender may be important in decisions of education participation and attendance. Second, households' economic behaviour depends on their stock of human and physical capital. There is evidence that if a parent is more educated the probability of their children becoming highly educated is higher than for those parents who have less education. The education of parents affects their wage rates positively, proxies for their attitudes towards education, and also may be an input in their children's human capital production function, possibly complementary to schooling (Carvalho, 2010). Parental education has indeed emerged as an important factor promoting children's education and reducing their child labour (Duraismy, 2000). 'Thirdly, labour market training, migration, marriage and procreation decisions may be accounted for by foreseen life-cycle factors and therefore should be less influenced by transitory developments in a person's lifetime' (Schultz, 1997 p.356).

A major caveat that we encounter in both models and generally in household behaviour models is the child's role in the household. Current models do not account for children in any form, they are assumed as without capacity or influence to take part in the decision-making process. The age group in our research falls within the range of 14-18 years old, which raises doubts as to whether this age group should be viewed as decision makers. Indeed, within the collective approach, Dauphin et al. (2008) have looked at the children and household decision-making process and conclude that children aged 16-21 should be an integral part of this.

Household decision-making on participation in compulsory education is constrained due to enforced government policies and laws, especially in developed countries. However, even the attendance decision in compulsory schooling in developing countries may still be dependent on the preferences of households due to ineffective and poorly enforced

education laws. Most of the existing labour supply models and human capital models do not take into account the existence of such inefficiencies as they are formulated to analyse behaviour in developed countries where compulsory schooling is regulated by the government. Otta and Moffat (2002) examine such models and come to the conclusion that they assume a functioning credit market which is not the case in many developing countries. Second, they are concerned with the decision making for post-compulsory education which is not always relevant in the case of developing countries. Third, educational decision-making is made by the individual which cannot be the case for compulsory education and, as argued above, such decision is usually made by the head of the family (in either household model). Post-compulsory schooling is not obligatory; households are faced with the decision of sending the children to school or to work.

It can be argued that the organization of households in Kosovar society has some strong patriarchal elements and given this, the head of the family will play the most important role in the educational decision-making process (OSCE, 2010). Given these characteristics it is unlikely that the two approaches would give rise to different empirical models in the Kosovar context. However, the data available for the investigation in this thesis is at class cohort level and thus the internal decision making of the family cannot be explored.

#### **2.4 The education production function approach**

After reviewing the human capital approach, we now turn to production function theory. Economists have utilized the theory of the firm to analyse production within education providers; this approach views schooling as broadly similar to a conventional production process. More specifically, similar to firms' utilization of resources to produce outputs, schools are viewed as using inputs (teachers, school infrastructure etc.) to achieve learning outcomes (Belfield, 2000). Here a school is considered as a production unit that uses its own resources and customer input technology (e.g. the contribution of the students' ability, student effort, and their peer effects) to generate educational attainment. Subsequently, an education production function can be used to express the relationship between schooling inputs and outputs where the outputs are considered primarily as

student outcomes. The majority of research into educational production functions utilizes student attainment to measure outputs but there are studies that have also utilized dropout and attendance rates as outputs (Hanushek, 1986).

Following Hanushek (1992), an education production function contains these elements:

$$A_t = f(A_{t-1}, FAM_{t-1}, PEER_{t-1}, SCH_{t-1}) \dots \dots \dots (2.3)$$

where educational attainment at the end of school year ( $A_t$ ) is a function of: prior educational attainment ( $A_{t-1}$ ), family inputs (FAM), peer group effects (PEER) and school inputs (SCH). Prior attainment is taken as the embodiment of prior ability or initial context for learning at stage of production (education) (Belfield, 2000). Family inputs influence pupil attainment; these effects are often proxied by the socio-economic status of pupil's families or their parents' education. Socio-economic status and parent's education are seen as key determinants of student attainment. The conventional assumption is that better-off parents are more likely to provide their children with schooling inputs such as books, provide a better out of school motivation for their children and better monitor their children's efforts and progress in school. Also there is evidence that parent's education may determine their children's attainment, meaning that children whose parents are more educated may do better in school, holding other things constant (Salvanes et al., 2005). Peer group effects are suggested to have a direct impact because students help (or hinder) each other, in the case of positive peer effects friends transmit and reinforce academic values that are conducive to raising attainment (Bradley and Taylor, 1998). School inputs, such as labour and capital inputs, school infrastructure, the quality of teaching, laboratory and information technology services may also affect educational attainment of pupils. Student characteristics are also likely to determine attainment, though these are may be correlated with the other determinants discussed above. Innate ability or the learning potential of student is commonly thought to be important, though finding a suitable proxy for it is problematic (Chen, 2009).

The education production function can be viewed from two perspectives: the school's and student's. For the purpose of this research the school's perspective is the most relevant however, initially we will briefly go through the individual's perspective. "From an individual's perspective, education is demanded as one element of a general utility function and so will be incorporated depending on how readily it can raise utility levels, compared to other elements" (Belfield, 2000, p.75). From the student's perspective, this education production function is built under the assumption that students are attempting to maximise their educational attainment subject to income and time constraints. Belfield (2000) argues that such maximisation of educational attainment is subject to the following constraints: school inputs (resources) may be fixed through government disbursements and family inputs of time and money are limited, though the latter constraint may be eased by borrowing.

From the school's perspective the objective is to maximise the education production function, where that maximisation is the aggregation of student outcomes based on their school's allocation of students (and associated families) and resources (such as teachers, books and buildings). There is a major limitation when applying the theory of the firm to model educational production. Schools produce multiple outputs and outcomes, not just student attainment. For example, schools may aim to produce high individual outcomes or a high number of students achieving a given level of outcome or both but there may be a trade-off between these two. Subsequently, these two outputs may be connected directly with each other meaning higher average scores in post-compulsory schooling exams may be generated by having a lower completion rate and vice versa. The latter may be due to both diseconomies of scale and a negative effect of class size on student attainment. Wenger (2000) argues that secondary schools produce two competing outputs: standardized test scores and completion which may be seen as substitutes and as such experience economics of scope.

The main issues arising from this approach concerns the definition and measurement of the variables: both dependent and independent. Hanushek (1986) sees education as a service that transforms fixed quantities of inputs into individuals with different qualities

which makes it difficult to measure. This typically causes production function studies to proxy education inputs with measures such as student characteristics, family, peer and school inputs due to the lack of data and measurement problems. For example family and student effort do not have market prices from the perspective of school. Measuring the family input of time is also problematic since this should not measure just how much time was spent with children but also the activities undertaken in that time (Leibowitz, 1977). Studies in educational research typically measure output by standardized tests, continuation, attendance rates and dropout rates. Following this discussion of education production function, we now continue with implications for the model specification for dropout, attendance and attainment models.

## **2.5 Implication of these approaches for model specification of student dropout, attendance and attainment in Kosovo**

After reviewing the human capital and education production function approaches we now turn to the implication of these approaches for model specification in the context of developing countries, more specifically with respect to Kosovo. As discussed in section 2.2.1, there are a number of factors that may be particularly important in less developed economies, such as budget and capital market constraints, risk and imperfect information. As explained earlier, education is not a good with simple demand function. It may rather be risky and uncertain in quality and future use which prevents individuals from optimal investment decisions (Belfield, 2000). In addition to these generally accepted factors, there are other contextual factors that may further constrain education investment decisions in Kosovo such as ethnicity, location and the dominance of traditional male bread-winner families. These need to be taken into account when modelling dropout, attendance and attainment in Kosovo.

As argued previously in section 2.3.2, education is a big investment and subsequently capital constraints impact upon the amount of education acquired by an individual. The higher the borrowing constraints the lower human capital accumulation (Belfield, 2000). The World Bank reports a strong negative correlation between education participation and poverty (World Bank, 2013). Post-conflict developing countries, such as Kosovo which is one of the poorest countries in Europe, typically have extreme poverty levels



disproportionately spread among children, the elderly and ethnic minorities. The Kosovo Poverty Assessment conducted in 2007 reported an astonishing 45% of the population as living under the poverty line. As a result, many post-conflict Kosovo households have faced severe constraints on their expenditure, particularly since about 45% of the houses were damaged during the conflict. As a result, budget constraints may affect many household's investment in schooling decisions in Kosovo. In addition, the financial intermediaries sector in Kosovo is still in its infancy stage. The interest rates on loans from the banking sector are the highest in the region, currently at 13.8 %. There are no established loan programmes developed specifically for funding schooling. Some initial small-scale initiatives have been piloted, though still with high interest rates.

High poverty levels and the absence of a market for educational loans may lead individuals in Kosovo to under invest in education, as the resale value of education attained is zero. These factors determine the type of students that will enrol as well as the quantity. Thus, students coming from higher income level groups may have a higher probability of enrolling and completing compared to students from lower income groups, regardless of their innate abilities. Another factor influencing behaviour in Kosovo is that future demand conditions in the labour market are very uncertain. Kosovar students tend to invest based on current demand. Currently, students chose streams with high demand such as economics and law. This may lead to the over-supply of graduates in these subjects in the labour market, which reduces their education premium.

Primary and secondary education is free in Kosovo; however there are some costs that may be associated with it such as transport costs for those attending schools in remote areas. In addition, highly disadvantaged groups such as the Roma, Ashkalia and Egyptian communities may view other costs that are related to schooling as large given their household income, such as appropriate clothing. Whereas for the university education there are other costs such as: tuition fees, books and foregone earnings. Accordingly, from human capital theory perspective, poverty and associated variables such as ethnicity are important to take account of in modelling dropout and attendance.

Poverty also is seen as an important factor to include from the education production function model perspective. Students from more deprived socio-economic environments, especially the ethnic minorities in Kosovo, such as the Roma, Ashkalia and Egyptian communities, are less likely to be provided with schooling inputs by their parents. In addition, peer effects are likely to reinforce low participation, high absenteeism and low attainment. Students from low socio-economic status and minority ethnic backgrounds are more likely to associate with low educational attainment households.

‘Individuals may have imperfect information about ability to absorb, understand and apply the education’ (Belfield, 2000 p. 48) and this may affect decisions in the human capital approach. In order to establish these time and money needs to be invested which is subject to risk. Even though ability is usually filtered through various testing procedures, the Kosovo education system has recently faced the emergence of the private universities and regional public universities of uncertain quality. These institutions may have been more lenient in enforcing admission standards and in enabling students to graduate in order to attract more students and to survive in the competitive market. The Human Development Report (2006) notes the effects of the estimated unemployment rate of 45% on income security. Kosovar youngsters face a relatively high risk that completing an additional year of education may not result in finding employment. ‘Discouraged scholars’ are more likely at stages of post-compulsory schooling which do not have end qualifications. The higher unemployment amongst minority ethnicities in Kosovo creates even higher uncertainties and greater risk associated with attending school.

As discussed in section 2.3.3, the strong patriarchal elements in household decision-making in Kosovo are likely to be reflected in the educational decision-making process. One consequence is likely to the favouring of the boys’ participation in post-compulsory schooling. This gender gap is likely to be more prevalent in the disadvantaged groups such as Roma, Ashkalia and Egyptian community in Kosovo. Also, female returns from schooling may be seen as lower, since women’s role is to specialise in home production, with males expected to be the main bread-winners. In Kosovo, apart from family inputs

such as parental education and socio-economic status, patriarchal elements may play a role in determining attainment and needs to be accounted for in the model.

Within the human capital approach, the private expected returns to schooling in Kosovo may also be impacted by location, with some regions being more agricultural than the others. Attendance will be affected since whole families take an active production role in harvesting seasons. There are other distinguishing characteristics of the rural areas and urban in Kosovo that should be taken into account when modelling dropout, attendance and attainment. First, although provision of basic education is scattered throughout Kosovo, students from more secluded rural areas may need to travel to a school 15-20 km away; this is often the case for secondary schools. As a result such students will incur higher direct costs of attending school. Also non-agricultural employment opportunities in rural areas are quite rare so there is little or no education premium in rural areas and students are unsure of future opportunities given that they live in quite small areas.

Another factor that is more pertinent in rural areas is teacher and school director's quality. This is directly a school input in the education production function approach, but may also lead to improved educational performance and hence better labour market returns in the human capital approach. Rural areas are typically unable to attract and retain the best-qualified staff members. Subsequently attainment is likely to be lower for a given length of schooling. There is also likely to be a 'city effect' resulting from the movement of students from rural to urban areas which may result in bigger classes which may lower attainment in some urban schools. Higher student numbers in urban areas in Kosovo have led to multiple school shifts conducted throughout the day as discussed in section 1.2.7, which may impact on the quality of the school inputs. This is particularly relevant for cities such as Prishtina where an estimated 800,000 thousand inhabitants now live compared to just 200,000 before the conflict (OSCE, 2010).

There are particular issues in applying orthodox theory to a developing country such as Kosovo without taking into account the contextual characteristics mentioned above. Many of the proxies are similar for human capital and education production function

approaches (and have the same expected sign) and it is difficult to distinguish between those two. The empirical review suggests that the approach taken by previous researchers towards theory has been rather eclectic, with their analyses lacking a clear explicit theoretical base. However, in general there is tendency to refer more to the human capital approach when education participation is examined and to the education production function approach for the student attainment (Hanushek, 2006).

After this review of human capital theory and the education production function and their implications for the specification of dropout, attendance and attainment models, we now turn to the theory of the evaluation of policy initiatives.

## **2.6 Theory of the evaluation of policy initiatives**

Evaluation is defined as “the process of determining the merit, worth, or value of something, or the product of that process” (Scriven, 1991). The existing literature describes comprehensive evaluation as a process which includes the following elements: monitoring, operational or process evaluation and impact evaluation. Monitoring is an integral part of the on-going intervention, programme and as a procedure should be embedded in the programme and used to assess how the intervention is implemented in terms of goals, indicators and outcomes. Operational/process evaluation looks more at the processes and procedures during the implementation of a programme and how the programme is implemented. Impact evaluation seeks to determine the programme’s effect on individuals, household or institutions and whether such effect can be attributed to the policy intervention. In line with current evaluation practice, we identify two evaluation types: formative and summative. Formative evaluation mostly studies the causes and circumstances which make a policy work or fail, whereas summative evaluation measures the impact of a policy, initiative and programme or government intervention by looking at the effect of such a policy (Magenta, 2003). Given the nature of the research reported in this dissertation the subsequent discussion will focus on the summative type of evaluation, also known in the literature as impact evaluation.

Fundamental to an impact evaluation is determining the ‘counterfactual’ of the intervention programme by seeking to hold other factors constant. Counterfactual deals with questions of what would have happened if the intervention did not happen and tries to establish what changes would have occurred anyway, regardless of the programme’s intervention. From the policy evaluation standpoint we are interested in the impact a policy intervention produces, and we do that by comparison of the actual and counterfactual outcomes. However, the counterfactual itself cannot be directly observed (Khandker, 2010). Recent research emphasises the argument that a carefully specified counterfactual will allow defining and estimating the treatment effect (Wooldridge, 2001). Each individual has a possible outcome with and without treatment, but an individual cannot be in both states. It is therefore important to have a suitable comparison group, chosen by comparing similar observable characteristics to the treatment group. If randomization is possible into programme placement this is likely to remove the problem of selection into the treatment group; otherwise it is important to include controls that seek to account for possible differences between the groups.

To measure the effect of treatment we need to calculate the difference in outcomes with and without treatment. Wooldridge (2001) describes two measures of the treatment effect: the average treatment effect and the average treatment effect on the treated. The average treatment effect is the expected effect on individuals or households from the randomly drawn population, whereas the average treatment effect on the treated is the mean effect on those that participate in the treatment.

If an objective of a policy has been achieved it does not necessarily mean that it is the result of the policy’s implementation. Consequently when we undertake an evaluation of a policy we have to consider the theoretical basis in order to establish the relationship between the change and policy. Causality in public policy initiatives expresses the relationship between the intervention and the impact and when we establish the counterfactual and measure the impact we have established a causal relationship at the same time (Ventoklis, 2002). This evaluation of policy initiatives entails two processes: estimation of the impact of the intervention and judgement on the result and as such

causality and counterfactuality are related to the estimation of the impact. As policy evaluation should already have established an expected cause-effect relationship, two types of causal models are identified: normative, which gives an understanding of how the programme should work; and descriptive which is how the programme functions in practice (Chen, 1990). Despite the argument that causality plays an important role, evaluations should take into account the possibility that inputs may not lead directly to the expected outputs, since alternative causal paths may appear. Rogers, (2000) puts forward three other types of causal models. Firstly a virtuous or vicious circles model where cause and effect relationships are not always connected in a linear manner but rather in circular one. This type of model requires that the programme and evaluation continues until the cycles are finished otherwise the outcome is not attained. Secondly, a symptomatic solutions model in which the symptoms are improved, but the problem is not solved. In this case the evaluation designs should attempt to measure how successful the programme was in terms of solving a problem rather than just finding a temporary amelioration. Thirdly, a feedback delays model in which lags may distort and unbalance the process. In this type of a model a delay can interfere with the identification of the impact of the programme (Rogers, 2000).

Another approach to evaluation is the programme theory approach which defines a set of assumptions by which the intervention is expected to impact on the targeted objectives and how the target will respond (Chen, 2006). The programme theory approach can generate two models: action and change models. An action model examines the procedures and processes that lead to programme implementation by typically looking at six components: organization; programme implementers, community partners, ecological context intervention, and the target population. The evaluators of such a model can review the organizational capacity, competencies of the implementers, community involvement, intervention and steps taken that lead to the intervention, but not necessarily the impact of the programme or intervention (Chen, 2006). Chen proposes a change pattern model that importantly supplements the action model in its third step. The steps proposed then are: firstly, intervention, which refers to the programme; secondly the

determinants, which is the process that happens between the intervention and outcomes; and thirdly outcomes, which refers to the effects of the programme.

There is a vast array of categorisations used in the evaluation of the policy initiatives: qualitative, quantitative, experimental and quasi experimental, theory-based approaches, research synthesis, and economic evaluation techniques (Magenta Book, 2003). Here only the most common methods of impact evaluation are reviewed, with a focus on the methods which are actually employed in this study. Qualitative evaluation identifies potential impacts, mechanisms and the extent to which a policy was implemented, and works more towards the creation of an understanding of the mechanism(s) that lead to outcomes of the policy. It deals more with understanding the socio-cultural and institutional context (Khandker et al., 2010) and with processes and implementation procedures, and looks at the behaviour and perception of the programme beneficiaries. Despite the provision of contextual information, qualitative evaluations are frequently criticized for the subjectivity of the data used, their lack of a reliable comparison group (that is of a counterfactual) and their small samples. The current literature suggests that statistical methods are to be preferred in the evaluation of impact in educational settings (Marshall, 2004, Attanasio et al., 2005). Quantitative evaluation approaches seek to measure the outcomes of the programme and compare them with the counterfactual outcomes if the project had not been implemented (Asian Development Bank, 2006).

Experimental designs are used to evaluate such policies, programmes or interventions based on the randomization concept. There are two steps to the randomization approach: firstly random selection of the participation which ensures external validity and secondly random assignment to treatment and reference groups to control for internal validity. Randomization can be pure, which consists of random selection of the population with consequent random division to two groups: the treatment and reference groups. Partial randomization divides the random sample into the treatment and reference group based on observable characteristics. The pure randomization method is seen as the most desired one and it is known in the literature as the ‘gold standard’, since there is no selection bias. The disadvantage of randomization mostly relies on ethical issues, internal validity and

external validity. Ethical issues have mostly to do with the denying the control group from taking part in the experimental group to be studied. For example, providing additional grants, which are unlikely to have a negative effect, only to certain schools puts other schools and their students at a disadvantage. Randomization methods are often used with small samples and as such are difficult to generalize for the population at large. If the treatment group is formed based on randomness then the evaluation compares this group with a non-treatment group with similar characteristics. Any differences between the treatment and non-treatment groups are attributed to the impact of the treatment or intervention.

There are three common randomization mechanisms: lottery design, phase in design and encouragement design (ADB, 2006). In the lottery design everyone has an equal chance of participation in the programme; in the 'phase in' design the whole population will go through the programme, but in different stages and with the 'encouragement' design everyone is eligible to take part but only a group of participants are chosen randomly through the provision of incentives whereas the other part serve as a comparison group. Setting up experimental design is a rather complicated procedure and encounters organizational and ethical concerns. There are two types of randomized designs: pre-post test control group and post-test only control group. Pre-post test control groups and post-test only control groups have similar characteristics, in particular both are randomized, impact is measured between the change in outcome for the intervention and control group. They differ in that with the pre-post test control group measurements are taken before and after interventions, while with the post-test only the measurement is only after intervention (Adamchak et al., 2000).

If the policy intuitive has not been set out as an experiment that is with randomisation of selection into participation and into the treatment group, as considered above, so-called quasi-experimental methods are used. Of importance in this method is the choice of the comparison group, which should contain similar characteristics to the treatment group in order to control for external factors. Recent research proposes some observable characteristics that can be used in the education field for the comparison group formation



such as: location, grades taught, socio-economic composition, teacher training and experience. Quasi experimental designs differentiate between the independent variables as a treatment variable and control variables and as such try to isolate the programme components of the treatment. However they may fail to take fully into account variations that could have profound effects on the outcomes, such as incomplete or inconsistent treatments or the same treatment having different non-modelled effects on the recipients (Lipsey and Cordray, 2000).

Randomization or not is a choice that has to be made before the implementation of the programme. In this study, as in many impact evaluations including the Cambodian study, this choice has already been made before the evaluation started. The data for this evaluation was not generated from a random method. Thus it is important to deal with selection into the programme as part of the evaluation and the establishment of an effective counterfactual with appropriate control variables is an key concern. There are various methods that are available:

a. Matching method

Impact evaluation in quasi experimental design faces the problem of missing data because of the lack of the information on the counterfactual. As such impact evaluation uses comparison groups, where in this case the reference group is usually created by two means: statistical design and intervention in the targeting strategy to lessen the differences between the treatment and comparison group (Khandker et al., 2010). Matching methods are based on matching the intervention participants with non-participants from a larger population and establishing the counterfactual with a ‘matched’ comparison group by pairing each participant with a non-participant with similar observable characteristics. Such methods assume the observable characteristics solve for the selection bias. One such method is propensity score matching which is the probability of participation in a particular condition. Propensity score matching attempts to solve for the randomization of the treatment group by establishing a counterfactual or a control group which has similar observed characteristics. Propensity score matching methods work by constructing a statistical comparison group which is based on the model of the

probability of participating in the group based on the unobserved characteristics. Participants are matched based on this probability. Matching of the participants with non-participants can be done through nearest-neighbour (NN) matching, calliper and radius matching, stratification and interval matching, and kernel matching and local linear matching (LLM) (Khandker et al., 2010). One of the main advantages of matching methods is that they do not require randomization or a pre-intervention survey, whereas their main disadvantage is often the lack of good quality data for the control factors and need for a large sample size to generate treatment and comparison groups in order to control for the factors that influence the programme placement.

b. Difference in difference method

This method looks at the differences in outcomes between a treatment and comparison group by comparing means before and after the treatment. It has been applied to both experimental and quasi experimental designs. It compares means of treatment and non-treatment groups before the intervention with means of the treatment and non-treatment groups after the intervention in order to capture the changes in outcome over time observed from a pre-intervention baseline (Khandker et al., 2010). This approach, however, makes an assumption that is problematic in the quasi experimental design evaluation: that involvement in the programme is independent of the outcomes without treatment.

c. Regression Analysis

Regression analysis is one of the most commonly used methods in empirical economics in policy impact evaluation. The data needs to include observations for treatment and non-treatment units and before and after treatment. The dependent variable is the outcome variable and as well as the treatment variable, control variables are included as independent variables. The control variables aim to control for the factors that determine treatment, so these are factored out, thus taking account of the self-selection (Wooldridge, 2002). Independent variables can also control for other factors that may change over the period of the treatment and affect both the treated and untreated, though maybe differently. With appropriate controls, regression analysis is one of the most

suitable methods when using non-experimental data as the factoring out of the other effects means that the policy outcome effect is isolated.

d. The instrumental variable approach

This approach tries to solve for potential endogeneity in the programme procedures such as decisions regarding participation, places and programme processes. It uses an instrument to predict treatment after factoring out the controls. It seeks to find an instrument that is highly correlated with programme participation but is not correlated with the unobserved characteristics that affect the outcome. This is used in a two stage approach where the first stage is a dummy dependent variable model that estimates the binary treatment indicator. Such instruments need to be carefully constructed and selected and are difficult to find in practice.

e. Regression Discontinuity Design

Regression discontinuity assigns a cut-off score to separate the treatment and comparison group. The idea is that in that in case where this is applicable once a particular variable or variables reach the cut-off, a policy automatically kicks in. The threshold could, for instance, be income level (Wooldridge 2002). The treatment effect is identified from the observations close to the cut off score (Khandker et al., 2010). The assumption is that treatment assignment is as 'good as random'. This design solves for the non-experimental setting by looking at the programme eligibility setting and setting for the exogeneity of the participants and non-participants. The difficulties with the RD approach come with the possibility that the eligibility rules have not been respected. The advantage of the regression discontinuity approach is that the identification of the counterfactual is set in the programme design. The disadvantage is that a threshold has to be applied in practice, and individuals should not be able to manipulate the score used in the programme to become eligible. In addition taking only observations close to the cut-off points restricts the sample size.

This subsection has reviewed the main methods of impact evaluation. The main concern in such evaluations is the determination of a counterfactual, what would have happened

without the intervention, given that we only observe one state. The ‘gold standard’ is a randomised experiment, but this has to be part of the design stage of a programme feature and this was not the case in the EPIP intervention. Thus we considered various quasi-methods in constructing the methodology for the evaluation undertaken; these are discussed in chapter 5.

## **2.7 Empirical review of the determinants of dropout, attendance and attainment in compulsory and post-compulsory schooling**

In this section we provide a review of the most frequently empirically researched determinants of dropout, attendance and attainment in compulsory and post-compulsory schooling. As we have discussed in the previous section, from the human capital point of view future earnings and better job prospects are interrelated with educational decisions to participate, attend and become higher achievers. A typical model of the demand for education can be specified with the most common cited determinants being: price, income, foregone earnings and tastes determined by socio-economic status. In practice, only the effects of socio-economic status and a few household characteristics have been frequently studied, other variables being often neglected due to data limitations. In the education production function approach the most commonly considered main determinants are prior educational attainment, family inputs, peer group inputs and school inputs as discussed in section 2.4. In practice, family inputs and peer effects have often been modelled in same way as in the application of the human capital approach. In this review of empirical evidence the focus is on studies from developing countries because they are more relevant for Kosovo as indicated in our discussion in the previous chapter. However, reference back to studies from developed countries will be made when there is a lack of sufficient recent research for developing countries. We look separately at dropout, attendance and attainment evidence for both compulsory and post-compulsory education; though surprisingly little empirical research has been undertaken on attendance issues.

Before going further with the review of empirical studies, we also note that there is a stream of literature which discusses the importance of the quality of schooling rather than just the quantity (Hanushek 1995, Kremer 1995, Orazem and Gunnarson, 2004): where quantity refers to completing more education levels and quality is more about the development of cognitive skills and productivity-enhancing behaviour and traits. In relation to this, in this research we examine both completion levels (attendance and participation) and achievement (attainment).

A review of the existing literature suggests that the words dropout and attendance have frequently been used without any clear differentiation between the two terms. Rather than use the definitions used in this thesis, as given in chapter 3.1, the term 'attendance' in studies of developing countries is usually used to mean whether the student is attending school at all, rather than what proportion of lessons were actually attended throughout the year. In this review, for consistency, studies have been re-classified according to our definitions of the terms dropout and attendance, rather than by the author's use of terms. That is why we use the term dropout rate (participation) to mean the number of students who no longer continue in education at primary and secondary levels of education. Even though we acknowledge that that term participation is commonly only used for the post-compulsory level, we will utilize this term in order to distinguish between dropout and attendance. Attendance is the proportion of time in lessons during the year of those who are registered students (UNICEF, 2000). Attainment deals with student achievement at given level(s) of schooling.

An issue that relates to the literature in this area in general is the calculation of the costs and expected benefits from education. Mingat and Tan (1996) in their appraisal of this empirical literature argue that problems arise in the identification and calculation of the costs and expected benefits that come from education. More specifically, the computation of the costs seems to be much easier with direct costs that occur from participating in education (text books, tuition fees, travel expenses), whereas indirect costs such as leisure for the compulsory level and foregone earnings for the post compulsory level are much harder to measure. The main difficulty remains in measuring elements such as: the value

of leisure of the children and of household work. In this situation estimating the price elasticity of demand is not relevant, because in almost all countries compulsory schooling is free or heavily subsidized by government. Also, as discussed in the previous sections, the benefits of education are difficult to measure because of the uncertainty about the future education wage and employment premia in the labour market. These measurement problems in empirical work have led to the focus of research being on the effects of socio-economic status and household structure. Most of the existing research models measure socio-economic status by: eligibility for meal vouchers for developed countries or poverty line for developing countries, parental income and parental education. For the household structure the authors usually look at the impact of family size and gender differences. In the following sections we will look at these demand-side determinants in relation to student dropout, attendance and attainment and their impact separately on the compulsory and post-compulsory level, as well as briefly considering some supply-side determinants such as the quality of schooling available.

### **2.7.1 Determinants of dropout in compulsory and post-compulsory school education**

The empirical review of the determinants of dropout for compulsory and post-compulsory education suggests that there are many demand and supply factors which determine dropout. Table 2.4 provides a summary of recent studies of dropout for the developing countries providing information on the countries where the research took place, the econometric technique used and the dependent and independent variables, as well as the main findings. In the following discussion, where there is a lack of relevant studies for developing countries, additional studies from developed countries, not presented in the Table, are discussed.

**Table 2.4 Review of empirical studies on student dropout determinants in compulsory and post-compulsory schooling**

Authors	Country	Econometric model	Dependent variable	Explanatory variable	Findings
Huisman and Smits (2012)	30 Developing countries	Multilevel modelling	Student participation	-Household characteristics -Grade related factors -Cultural and economic factors	Socio economic status, parents education and household wealth are significant and positive
Sabates et al. (2010)	Bangladesh	Logit	Student participation	Student characteristics Household characteristics	Household characteristics are significant in the decision of staying in school.
Okumu et al. (2008)	Uganda	Logit	School dropout from compulsory education	-Student characteristics -Family background such as family income and parental education-Community based factors	-Family background significant, more specifically parental education is significant and positive -Travel to school, school expenses insignificant
Sackey (2007)	Ghana	Probit	School dropout in primary and secondary education	-Student characteristics -Household characteristics -Regional characteristics -Financial resources	Significance of mother's and father's education and financial resources at the disposal of households
Hazans and Trapeznikova (2006)	Albania	Probit	Access and participation in secondary schools	-Household structure -Family background variable such as: parental education -Schooling costs	Household structure significant and positive Parental education significant and positive
Nielsen et al. (2006)	China	Logit	Student participation of migrant children in compulsory education	-Wife's (husband's) work location , -Father's ( mother's) age, -Household income, -Parent's education	Household income and the wife's work location were statistically significant
Kuenning and Duryea (2006)	Latin America (Brazil, Ecuador, Nicaragua, Panama)	Probit	Student participation in post-compulsory schooling	-Children's age, -Household income, - Parent's education	Parent's education has a positive and significant impact on the probability that an adolescent is enrolled.
Yunita (2005/2006)	Indonesia	Probit	Child labour, student participation in compulsory schooling	-Age of child, -Per capita expenditures, -Number of children	Mother's educational attainment has a greater impact than that of the father's.

Holmes (2003)	Pakistan	Probit	Student participation	-Student characteristics -Household characteristics -Community characteristics	Parental education is significant and positive Household wealth is significant and positive
Deb and Rosati (2002)	Ghana India	Multinomial Logit	Child labour, student participation in compulsory education	-Student characteristics: age, gender, -Household characteristics: number of children -Parents education -Family income	Unobserved household heterogeneity is responsible for considerably greater variance of outcomes than observed income and wealth heterogeneity.
Jayachandran (2002)	India	Random Effects Model	Student dropout	-Adult literacy rate -Female work participation rate -Female wage rate -Poverty -Caste -School availability -Regional location	School access significant and positive Parental education significant and positive
Ravallion and Wodon (2000)	Bangladesh	Probit	Child labour, schooling in compulsory education	-Household characteristics, -Parent's education,	Partial displacement of schooling by child labour. However, enrolment subsidies reduced incidence of child labour.
Escudero and Marchionni (1999)	Argentina	Logit	Student participation in compulsory education	-Household characteristics, -parent's education, -Family size, -income	Income and parent's education play a key role in decisions to send children to school.
Nielsen (1998)	Zambia	Bivariate Probit Model	Student participation	-Student characteristics -Household characteristics -Community characteristics	Socio-economic status is significant and positive
Jensen and Nielsen (1997)	Zambia	Logit	Student dropout	-Student characteristics -Household characteristics	Socio-economic status is significant and positive



The empirical evidence on participation issues in compulsory schooling relates directly to the issue of child labour. The main hypothesis behind such a correlation is that when parental income is low the likelihood of dropping out for work increases in developing countries. Deb and Rosati (2002) argue that most of the studies on child labour see school participation as the only alternative to work (Jensen and Nielsen, 1997; Ravallion and Wodon, 2000). Nielsen (1998) looks at the school and work decisions as two joint decisions and treats them as simultaneous, studying them through a bivariate probit model, and comes to the conclusion that more child workers are found among those with poor parents rather than rich ones, in rural areas rather urban areas and among older children rather than younger children. Nielsen et al. (2006) in their study of the determinants of schooling for migrant children in China apply a logistic regression and find that household income is significant: a one unit increase in income increases the odds of participating by 1.227. Similar results are found by Peraita and Pastor (2000) when studying the determinants of compulsory education in Spain: the higher the level of income the less likely is the child to drop out. Jayachandran (2002) investigates the socio-economic determinants of school participation in India for the ages 5-14 through a multivariate analysis and concludes that poverty has a significantly negative effect on participation: an increase of one percentage point of poverty is estimated to lead to a decrease of the probability of participation by 0.13 percentage points. If returns to education are high, and returns to child labour are low then there is likely to be a decrease in children's labour supply (Deb and Rosati, 2002). Huisman and Smits (2012) through multilevel modelling for 363 districts of 30 developing countries confirm that students with higher socio-economic status are more likely to stay at school and not drop out.

Evidence of a relationship between child labour and post-compulsory schooling in developing countries is not much explored in the empirical work, since youngsters here have free unconstrained choices either participating in education or joining the labour force. Mocetti (2008) applies a multinomial logit for labour force survey data in Italy and found that early school leaving and upper secondary school choice is related to parents' socio-economic status. Using a bivariate probit model for 4 countries in Latin America,

Kuenning and Duryea (2006) come to an understanding that post-compulsory students aged 14-16 years old who live with a single parent are more likely to dropout of school because of their lower family income. Higgins et al. (2008) found that lower permanent income has a negative effect on participation for post-compulsory school education in Italy; however it is not always significant.

Among the characteristics most researched are gender and family background. From a gender perspective, Sackey (2007) finds the probability of girls participating is lower than that of boys in developing countries at both compulsory and post-compulsory levels. Holmes (2003) and Jayachandran, (2002) support these findings at the compulsory level. However Okumu et al. (2008) did not find this gender effect in Uganda and suggested this may be due to the government heavily subsidizing compulsory education, which is the case in many countries.

Haveman and Wolfe (1995), using United States data found that if parents have more education there is a significantly smaller chance that their children will drop out of school. Holmes (2003) provides evidence that this impact differs by gender, the education of the father increases the expected level of staying in school for boys and that of the mother's enhances the educational participation of girls and similar results were found by Escudera et al. (1999). However, Higgins et al. (2008) found for Italy that mother's education is more relevant than the father's for both sons and daughters and therefore they use only mother's education in their probit econometric investigation of school dropout probability. They argue the effect is likely to be the result of two factors: mother's education is less related to family income and the mother's education variable is more related to children leaving school. Nielsen et al. (2006) find that the impact of mother's education is not linear: mothers with only primary education are estimated to increase their child's participation by 40 percent, mothers with lower secondary school increase by 90 percent, but for mothers with higher secondary education there may be a decrease.

The level of family income and its changes have been considered as one of the key determinants of dropping out at compulsory and post-compulsory levels, with changes in income affecting the decision to send children to school or work (Lopez-Acevedo, 2002). Nielsen (1998) finds that school participation does not respond significantly to changes in income in all cases, in her analysis of school participation and child labour in Zambia. However, she found that changes in family income were significant for children with 'bad' household characteristics, meaning children coming from poorer backgrounds. Sabates et al. (2010) have explored this relationship further and found that it is not only family income that may impact the decision to dropout but it is also parents' engagement and interest in schooling.

Escudero et al. (1999) researched the effect of the number of the siblings in the family and found that it has a significant negative impact on participation of boys, whereas for girls the effect is still negative but never significant. Okumu et al. (2008) conducted an empirical analysis of household survey data for Uganda through a logistic model and found that as the number of children in the household increases the likelihood of primary school dropout also increases. Empirical research has yet to uncover significant gender discrimination in the intra-household allocation of schooling resources favouring the male child over the female child (Mohanty, 2006).

Studies of post-compulsory education generate broadly similar results on the significance of parental education. Kuenning and Duryea (2006) analyzed the effects of parents' education jointly on post-compulsory education and the effect of each parent for the following countries: Brazil, Ecuador, Nicaragua and Panama. In general parents' education was found to be significant for each of the respective countries, whereas when the regressions were run for each parent's education separately the results suggested that the effect of the mother's education on participation was stronger than that of the father's, though further inspection suggests that this difference between them was not statistically significant. The estimates of the gender specific differences in the determinants of schooling and work participation of children in post-compulsory education in India suggest that increased maternal education increases the likelihood of school enrolment for

a girl more than for a boy and also reduces by more the early participation in work for a girl than a boy (Duraismy, 2000).

The authors suggest that higher quality schools can improve participation rates and students in low quality schools are more likely to drop out (Orazem and Gunnarsson, 2004, Hanushek et al. 2006). Empirical evidence from Egypt found that raising school quality level reduced the dropout rates by up to two-thirds between 1979 and 1980 (Hanushek et al. 2006). For compulsory level schooling in Albania, Hazans and Trapeznikova (2006) used the education level of the teacher as a proxy for school quality and found school quality to be important with a 10 percentage points increase in teachers with higher education increasing participation by 2 percentage points in rural and 7 percentage points in urban areas. Nielsen (1998) applied a bivariate probit to Zambian household survey data from 1993 and even though the author did not explicitly define school quality, some of the variables included seem to be related to school infrastructure such as the adequacy of school roofing, school furniture and literature such as the availability of books for the students. Nielsen found that the low quality of schools in Zambia, most specifically poor school infrastructure, impacted significantly on participation especially in rural areas.

### **2.7.2 Determinants of student attendance in compulsory and post-compulsory school education**

The review undertaken suggests that there is a lack of research on the determinants of attendance for both developing and developed countries. The only study identified that has focused on school attendance in the UK is the National Audit Office (NAO) study conducted in 2005. The NAO report examines student attendance in compulsory education and finds that student, school and family characteristics are important in determining student attendance, although its results should be considered descriptive given the problem of endogeneity of attendance with attainment. This report also puts an emphasis on the difficulties when working with attendance data, more specifically: incompleteness, inaccuracy and inconsistency of the attendance data. Similar data problems are also relevant for Kosovo and are discussed in chapters 5 and 7 of the thesis.

### **2.7.3 Determinants of attainment in compulsory and post-compulsory school education**

Belfield (2000) notes that the production of education can be expressed as the relationship between inputs and outputs that go into education where the output for education is student attainment. Student attainment is expressed as a function of student characteristics and family background, school characteristics, effort and innate ability. There is a large amount of empirical work on the determinants of attainment in compulsory and post-compulsory education. Most of the existing discussions on the determinants of attainment for compulsory and post-compulsory school education are focused on the effect of different levels of resources and often ignore other determinants. We will discuss the resource effects briefly in section 3.2.2 of the following chapter. As discussed in section 1.3.3, as well as national standards, student attainment can be measured through various international assessment studies such as: PISA (Programme for International Student Assessment), TIMSS (Trends in International Mathematics and Science Study) and PIRLS (Progress in International Reading Literacy Study).

Apart from the resource effects the effects of the following characteristics of the students have been researched: gender, ethnicity, socio-economic status, student effort and more recently student attendance. Woessman (2003b) found that, other things being equal, student background such as student ethnicity and family socio-economic status play an important role in student attainment. Marks (2008) utilized PISA study data from 31 OECD countries and found that females outperform males in reading, however, when it comes to mathematics the results are inconclusive and differ based on the country context. Attendance is also found to impact on student attainment at the primary and secondary level with high scores were associated with low absence rates. However, such a relationship was not interpreted further because of the endogeneity problem from simultaneity, since attendance may also be affected by attainment (National Audit Office, 2005). Pugh et al. (2011) were able to treat attendance as endogenous in their dynamic panel estimation and found that it impacts on attainment, but in discussion raised the issue that as well as a direct effect attendance could also be a proxy for other unobservable characteristics such as parental involvement and support for learning.

Apart from student characteristics, important additional features in modelling attainment are school characteristics. Fraja et al. (2010) looked at the impact of the 'effort' of all the educational stakeholders, such as students, parents and teachers on the student attainment for the United Kingdom. The results varied between family and school efforts: parents' and students' effort was found to be more important in determining the level of student attainment than those of schools. Darling-Hammond (2000) looked at how teacher qualifications are related to student attainment and found that the level of teacher certification and extent of their preparation plays a role in student attainment. Wayne and Youngs (2003) reviewed previous research and came to the conclusion that the extent of teacher education may play a role in determining student performance; however, it still needs to be further examined to better understand the specific characteristics of that education that are of importance. Glewwe et al. (2011) reviewed the literature from the 1990s to 2010 for the primary and secondary levels of education on which school and teacher characteristics impact on student achievement. They found that although the evidence is limited, there is some indication that attainment is impacted by the quality of school infrastructure and the teacher's knowledge of subject. However, such impacts may be influenced by the different country context regarding teacher minimum education levels: more specifically some countries may have established criteria of the level of the education required to be a teacher and some may have not. For example, in developed countries teachers are often required to have a bachelor degree.

## **2.8 Conclusion**

In this chapter the theory and evidence of the determinants of educational decision-making on compulsory and post-compulsory level schooling have been examined. The discussion in this chapter reviewed the relevance of alternative approaches to the educational decision-making, focusing on the sociological versus economic approaches. The appropriate unit of decision making was critically reviewed with reference to Kosovo and the conclusion is that given the patriarchal nature of households on Kosovo, the unitary and collective models are not likely to generate different predictions. Apart from this, we have examined human capital theory and the education production function and assessed their implications for the dropout, attendance and attainment model and its

application to the Kosovo context. We concluded that the two theories suggested similar determinants, although the rationale for inclusion differed between them. Also, though such models may be appropriate for use in developing countries some adjustments are needed having in mind the specific contextual features. The existing empirical evidence on the determinants of dropout, attendance and attainment were examined critically. Student, family and household characteristics are generally found to be of great importance in the above mentioned schooling issues. There is little empirical evidence on the determinants of student attendance. Following this review of the theory and empirical evidence on the determinants of student dropout, attendance and attainment, in the following chapter the characteristics and impact of alternative policy intervention on educational outcomes are analysed.

## CHAPTER 3 A REVIEW OF DIFFERENT EDUCATIONAL INTERVENTIONS WITH A FOCUS ON DEVELOPING COUNTRIES

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### **3.1 Introduction**

The discussion in chapter 2 focused on the theory of educational decision-making and a literature review of the determinants of dropout, attendance and attainment decisions. After discussion of the educational determinants we now focus our discussion on the existing evidence of the impact of government interventions, and more specifically education development grants, on school dropout, attendance and attainment, with a focus on developing countries. Following this introduction, in section 3.2 we extend our discussion from the previous chapter on household decision-making, to examine the market failure and equity rationales for government intervention in schooling markets, such as requiring compulsory schooling and the provision of additional resources. Section 3.3 reviews the current state of knowledge on policy initiatives on the demand and supply side of education, while section 3.4 focuses on the nature of education development grants and section 3.5 discusses the different types of education development grants. In section 3.6 we look at evidence on the effects of education development grants previously implemented in the developing countries and finally our discussion is concluded in section 3.7.

### **3.2 Government interventions in schooling markets**

There are two main objectives which may lead to government interventions in education: efficiency and equity (Steeg, 2005). As explained in chapter 2, household decisions regarding the level of schooling of their children may not generate socially optimal levels of educational attainment. Given this ‘market failure’ governments frequently intervene in schooling markets in order to attempt to raise social welfare. Belfield (2000) identifies the following three key market failures that may impact on schooling markets: asymmetric information, in particular: the problems which less-educated parents have in assessing the benefits of education; incomplete contracts as a result of the difficulties in measuring the quality of schooling and capital market imperfections which may not allow borrowing to fund educational investments given the uncertainty of the returns from education. As a result of reactions to these market failures and concerns about equity many governments intervene in the schooling market by the provision of primary and secondary schooling free of charge.

Emmerson et al. (2005) argue that one of the key challenges for policy makers is to identify where and by how much government intervention can improve the allocation of resources. In the next sub-sections we examine areas where government intervention to impact on schooling participation rates is almost universal: compulsory schooling and the provision of centrally-funded resources. The existing literature has distinguished between demand and supply-side resource interventions, which are explored further in section 3.3.

### **3.2.1 Compulsory schooling**

Compulsory schooling is embedded in the education legislation of many countries throughout the world: indeed the right to schooling is included in the Universal Declaration of Human Rights. The duration of the compulsory years of education vary from one country to another, with developed countries including also secondary education. The OECD (2011) reports that compulsory education is universal amongst OECD countries; however it is not the case for the developing countries. In developing countries the enforcement of compulsory education laws is seen as a measure for equalizing access and eradicating child labour.

Recently, the form and duration of compulsory schooling has been at the centre of education policy debates in developed countries. The main emphasis in this debate has been raising the compulsory schooling levels as an instrument towards a better linkage between schooling and the labour market and helping to achieve or sustain international competitiveness in the globalised economy. This linkage reflects a widespread belief in the increased importance of human capital in modern knowledge-based economies. However, the existing empirical research suggests that there are mixed findings on the effectiveness of raising compulsory levels of schooling. Bono and Rueda (2006) investigate the English system in order to estimate any causal effect of compulsory schooling on the labour market by examining a natural experiment which allowed students to leave at different times and find that students who stay until they receive a qualification have a tendency to perform better in the labour market. Oreopoulos (2007) has utilized the changes in US compulsory schooling laws which have raised the

schooling leaving age to 18 to estimate the effect of additional compulsory schooling on disadvantaged youths and found that the laws which raised the school leaving age impacted on educational outcomes in terms of reduced dropout, increased college enrolment and improved career outcomes. In addition, raising compulsory schooling can benefit disadvantaged youths. Pischke and Watcher (2008) estimate the impact of changes in compulsory schooling on earnings in Germany and find that there are zero returns in terms of higher earnings. Devereux and Hart (2008) have investigated returns from compulsory schooling in Britain by using the 1947 change in compulsory schooling and found that there is no evidence for positive returns for women, though the increased return for men was in the 4-7% range. Grent (2011) investigated two reforms that increased the compulsory schooling levels in France and Britain and found that the British reform led to an increase of 6-7% in hourly earnings per one more year of compulsory schooling whereas the impact of the reform in France was zero.

Patrinos et al. (2006) found that the rate of return from completing primary education is higher in developing countries compared to developed countries. Nielsen et al. (2001) argue that empirical evidence on the returns from compulsory schooling in developing countries is inconclusive, indicating that there is disagreement as to whether there are net private returns to schooling. This particular study examines returns from education in Zambia, examining household data, and find that returns from schooling at compulsory level are positive only for rural areas. Campos and Jolliffe (2003) estimate the rate of return for Hungary and find that the primary education rate of return is the lowest; the returns are greater in the secondary education. Flabbi et al. (2007) examine returns to schooling for eight European transition countries in relation to market liberalization and find that evidence of any increased returns is weak, although there are variations amongst the countries.

The evidence from developed countries suggests that additional years of education may lead to higher returns though, as argued by Patrinos and Sakellariou (2004), there is a lack of evidence and consensus on findings for developing countries. Some of the reasons for

the latter may be attributed to data sampling and methodological problems (Psacharopoulos and Patrinos, 2004).

### **3.2.2 Resource effects**

Demand and supply side interventions are associated with ‘resource effects’, which are the result of the additional or superior resources given to improve the quality of schooling and take the form of changed returns from attending and extending schooling. As such, it is quite common for the level of resources to be used as an index of school quality, though it can be argued that inputs should not be used as a proxy for measuring outputs. There is a vast literature estimating the resource effect on educational outcomes in terms of improved attainment, which are most commonly measured with students’ test scores. Hanushek (2006) investigated the resource effects for developed and developing countries and found that resource policies which are not incentive based are largely ineffective. However, recent evidence for England does indicate a small but significant return (Levacic et al., 2005, Pugh et al., 2011). For developing countries the evidence is limited due to a lack of high quality studies, with only a few studies (reviewed in Glewwe et al., 2011) concluding that variables that may impact on school quality, such as teacher attendance and their subject knowledge, are significant. For developed countries, studies find little evidence of a large impact of resources on school quality; the general finding is of a small effect which suggests that most resource-based interventions are not cost-effective. A general understanding coming from various ‘resource effect’ studies suggests that policies should be more refined in terms of objectives, criteria and incentives in order to be cost-effective.

In the rest of this chapter, given our key research questions, we will focus mainly on interventions in developing countries and their impact on school dropout, attendance and attainment but we will draw inferences from the developed countries where applicable

## **3.3 Demand and supply-side interventions**

Most governments recognize the importance of education in promoting economic and social development and therefore invest, large shares of their budgets in education,

ranging approximately from 3.5-8% of GDP (OECD, 2012). Government funding may aim for 'equity' in society, even though what is meant by this objective varies between equal opportunity for all, better and more uniform educational outcomes and more resources for the education of those from less-affluent backgrounds (Patrinos and Ariasingam, 1997). Nevertheless, there are still marginalized groups based on socio-economic status, gender and ethnicity who have relatively low educational outcomes in terms of participation rates, attendance and attainment. Therefore, governments typically experiment with different ways of channelling funds for the education of these groups.

The education financing mechanisms may vary from country to country depending on the country context, programme objectives or education levels (Vawda, 1997). The literature distinguishes between demand side and supply-side financing, but there are some differences in the detailed definitions between writers. Patrinos (2007) looks at demand-side financing as a intervention where school resources are given through students and their parents, whereas the supply side refers to resources in terms of being human and material. Glewwe and Olinto (2004) identify demand-side financing as an intervention that provides payments to children enrolled in schools and supply-side financing as incentives given to assist schools. Martinelli and Parker (2003) classify supply-side interventions as interventions aimed at improving infrastructure or the quality of education and demand side as interventions attempting to provide incentives for poor parents to keep their children in school. Demand-side financing in education involves numerous interventions that earmark public funds for public and/or private education to the individual or his/her family. Slightly differently, Patrinos and Ariasingam (1997) identify demand-side financing as the provision of public funds for individuals or institutions based on their demand. Supply-side financing occurs when various stakeholders, such as government or non-governmental institutions, provide conditional resources to parents, children, schools and communities to spend on specific services. In this thesis, we prefer to use the terms individual and school-based grants, where the former is seen as relating to the demand side and the latter to the supply side.

### **3.4 The nature of education development grants**

The nature of education development grants varies dependent on whether the programme stands alone or is a component of a bigger social programme/policy initiative/strategy, such as poverty alleviation or child labour reduction. Holzmann and Jorgensen (2000) argue that social programmes aiming at poverty alleviation can be effective in improving household welfare in the short run as well as in the long run. The expected outcomes from such interventions in developing and developed countries are various: poverty alleviation, lower child labour rates and improved quality of education in terms of higher student participation, attendance and better student attainment.

Even though education development grants may have different objectives in developing and developed countries, they tend to have similar outcomes: better participation, increased attendance and improved attainment, as explored in some detail in what follows. These kinds of initiatives have been implemented in different parts of the world with different names such as: Bono Escolar in Argentina, Bolsa Escola in Brazil, Programa de Asignacion Familiar in Honduras, Progreso in Mexico, Familia en accion in Colombia. Comparable initiatives in OECD countries attempt primarily to increase educational value-added and have been implemented in countries such as the UK, Australia, USA, Netherlands and Denmark. For example, Education Maintenance Allowance (EMA) was introduced in UK as a benefit payable to socially disadvantaged young people who stay on in full-time education past compulsory level. Dearden et al. (2006) researching the effects of the EMA in England and Wales found that it encouraged an additional 5% of young people from low income families to stay in full-time education and reduced significantly dropout rates. Vouchers in the United States have increased educational opportunities for the poor and achievement results are positive for many students (Vowda, 1997). .

### **3.5 Types of education development grants**

There are two main types of education development grants: individual and school-based grants. Individual grants are given to a person(s) for his/her or their dependents' education advancement purposes only. School-based grants provide support to schools to

fund interventions planned and/or implemented at the school level. According to Gertler et al. (2007), the unit of analysis for school-based interventions should be the school, or lower-level units such as pupils. However, all members of the school community may potentially benefit from any reforms and as a result a full evaluation of the intervention requires the involvement of all stakeholders, including administrators, teachers, students and the broader school community.

Some of the main types of individual grants used in education in developing and developed countries are now examined briefly. Patrinos (1997) identifies the following types of grants. A **Conditional Cash Transfer** is the most typical individual education grant, and consists of cash being transferred to a family to compensate for the schooling costs of a child on condition of regular school participation. In many developing countries due to the financial constraints of the households and the prevalence of subsistence agriculture, the household has to make a decision on whether to send a child to school or work. Such grants effectively increase the rate of return from investment by reducing the cost of schooling. Conditional cash transfers are a common practice in developing countries with the aim of increasing school participation, attendance and attainment. Usually conditional cash transfers are given to marginalized groups such as: rural females lower socio-economic households and minority ethnic groups.

**Vouchers** are an entitlement to education issued to a student to cover or part cover educational costs. Vouchers have been issued in developed countries with different objectives and in different forms, such as to increase the range of choices available to students for enrolment in public and private schools or as meal vouchers. Enrolment vouchers give families more choice and potentially therefore they are able to choose among school options that fit their needs better. Improved opportunities with enrolment vouchers may increase the return to schooling investments and as a result increase participation. Meal vouchers are targeted usually at disadvantaged groups, such as low socio-economic households, which reduce the household's costs of sending their children to school and by improving their diet may raise a pupil's attainment through better concentration and overall health.

A **scholarship** is usually cash given to students to offset schooling costs. Generally core expenses such as books, tuition, and transport, and incidental expenses are covered by the scholarship. Scholarships can be awarded based on pre-selection criteria, with the most common one being high previous attainment levels.

**Loans** are given by government to settle education costs, usually at higher education level and are applicable in developed countries. Loans are also provided on preferential and socially redistributive terms.

The aim of school-based interventions is to decentralise the decision-making process, providing incentives for more active participation by schools so that decisions are, hopefully, made in a more efficient manner as a consequence of decentralizing greater authority to the school level (Gertler et al., 2007). Four types of school-based management reforms are identified in the review of 83 empirical studies by Leithwood and Menzies (1998): administrative control reforms, professional control reforms, community control reforms and balanced control reforms. Administrative control is one led by the principal who is the key person and as such in charge of all the school affairs and effective utilization of the school resources. In the professional control category teachers play an authoritative role and utilize their professional experience for the purpose of exercising school based decision-making processes. Community control is where the local community takes an active role in making decisions; and the balanced control involves contributions from parents, school management and staff. The balanced control version is currently the most popular with the goal is to increase participation of parents and communities, build local schooling capacity, create accountability mechanisms and therefore hopefully lead to an improved quality of education in terms of better student participation, attendance and attainment.

### **3.6 Targeted assistance in developing countries**

Targeted assistance in developing countries has been implemented through individual and school-based grants. In this section we examine the evidence on the impact of targeted assistance in developing countries and consider the evaluations carried out on these policy initiatives. In the following sub-sections the most popular individual and school-



based subsidies implemented in developing countries such as Mexico, Brazil, Honduras and Columbia, Guatemala, Cambodia and El Salvador, are examined.

### **3.6.1 Individual Subsidies**

In recent years most of the individual subsidy programmes in developing countries have been based upon PROGRESA (Programa Nacional de Educacion, Salud, y Alimentacion), which is a Mexican government programme. The PROGRESA, later known as Oportunidades, was implemented initially by the Mexican Federal government in 1997. It is a programme which adopted an integrated approach to combating the different causes of poverty by intervening simultaneously in three areas: health, education and nutrition. For the purpose of our research we will focus on the education component only. The education component of PROGRESA was designed to increase school participation among youths in Mexico's poor rural communities by making education grants available to pupils' mothers, who then are required to ensure that their children go to school regularly. The assumption behind the programme was that while households value the importance of augmenting their child's human capital, they are driven to decide between sending their children to school or work due to financial constraints. Interestingly, the grants were given to mothers because they were seen as the key decision makers regarding the education and health of their children. Programme eligibility was based upon the poverty levels of cities/villages in the first selection and socio-economic status of the families in the second stage.

However, few evaluations of this programme have been implemented over the years. Schultz (2001) analyzed the impact of this assistance on the school participation of Mexican youths by comparing participation rates of the children who reside in communities randomly selected which participate in PROGRESA (treatment) and those who reside in other comparably poor (control) communities through probit models. He found that the probability of participation amongst children of grades 1-8 was higher by 3.4 percent in localities with these incentives were available than in localities without them. The increase was the largest for girls who had completed grade 6, at 14.8 percent. Overall, participation rates in treatment schools were significantly higher than in control

schools. The impact was calculated as the change in participation in treatment communities over time minus the change in participation in control communities. Behrman et al. (2001) used a Markov model to measure the impact of the programme on student dropout, participation and student repetition rates and found that the programme increases participation by 19%. Notwithstanding this large participation effect, Behrman et al. (2005) argue that, given the cash transfer of \$860 per child per year of education, overall the programme was not cost effective.

The Bolsa Escola programme in Brazil began in 1995 by establishing a grants intervention programme to reduce the dropout caused by poverty and it was specially aimed at low income families. A minimum low cash grant was given to low income families upon condition of school participation by their offspring. The beneficiaries of the Bolsa Escola program were poor families with school age children 7-14 years old. Cardoso and Souza (2004) investigate this programme, utilizing propensity score methods to estimate the impact of cash transfers on school participation and child labour. Since they have no data on a comparison group they construct such a group by applying the propensity matching score method in order to balance observed covariates between the treatment and comparison groups. They find that the average treatment effect suggests an increase of three percentage points in school participation rates. However, the cash transfer programme did not appear to be effective when it comes to impacting on child labour. The possibility of school participation for children from low socio-economic status is higher, but the children combine labour with school participation since the cash transfer amount is low and as such is not a sufficient incentive for the children to stop working completely. The change of three percentage points is considered as large since only 8% of the children are out of school and as such one may deem this initiative as being cost effective since the transfers are relatively low. More recently Glewwe and Kassouf (2012) confirm the decrease in dropout, but find only a 0.5 percentage point decline which is smaller than that found in previous research.

The PRAF (Programa de Asignacion Familiar) programme is a succession of social programmes implemented in Honduras with the aim to lower poverty levels and improve

consumption levels. PRAF II was specifically oriented to the improvement of human capital by increasing the demand for education. This was implemented through the provision of financial resources to families, conditional upon school participation. Glewwe and Olinto (2004) utilized the randomized design of the PRAF programme to assess the impact of these grants on school participation, attendance and promotion of children aged 6-13 in the rural areas of Honduras. A before and after treatment survey was conducted for the treatment and non-treatment municipalities. An ordered probit model suggests that the probability of participation was increased by 2-3 percentage points in treatment municipalities; school attendance increased by 0.8 days per month; and annual progression rates increased by 2-4 percentage points. However there was no change in child labour status. Regarding cost-effectiveness, it was suggested that the programme may work better if concentrated on poorer households rather than better off households, who were not sufficiently motivated to participate and as a result it was suggested that a future programme may have stricter restrictions on the levels of the poverty targeted.

Familias en Accion FA was implemented in 2000 in Colombia and has two components: education and nutrition components. The programme offers monthly subsidies to mothers conditional on their children's school participation. The effect of the subsidy has been estimated using a quasi-experimental approach which compares municipalities that participated with matched municipalities that have not participated in the programme. Osorio et al. (2008) investigated the impact of these conditional cash transfers on participation, attendance and attainment using ordinary least squares estimation. Their results suggest that there is an increase of 2.6 percentage points in participation, 2.8 percentage points in attendance and 1.6 percentage points in attainment. These findings generally support the earlier study of Rawlings and Rubio (2005) who concluded that the conditional cash transfer in Colombia was successful in addressing participation, attendance and attainment. The programme was deemed as beneficial and cost-effective since the increase in attainment may have led to increased future earnings. This programme reached out to about 2.8 million households with a total cost of approximately 0.2 % of GDP.

This review of evidence suggests that individual subsidies have been quite successful in terms of addressing and improving dropout, attendance and attainment. When it comes to cost-effectiveness of such individual subsidies the results are more mixed, with a few of the initiatives being deemed to be too expensive.

### **3.6.2 School-based Subsidies**

This subsection provides an overview of some of the school-based subsidies conducted for developing countries which aim to improve participation, attendance and attainment. These school-based subsidies were implemented in the following countries: Cambodia, Mexico, Honduras, El Salvador and Guatemala and are summarized in the Table 3.1. We present each initiative separately by providing a programme description and also a description of the evaluation. We start with the Cambodian research which serves as the key reference study for the purpose of this research.

**Table 3.1 School/Community-Based Subsidies**

<b>Year of programme</b>	<b>Programme name</b>	<b>Country</b>	<b>Programme description</b>	<b>Selection of schools/ communities</b>	<b>Scope</b>
1998	EQIP	Cambodia	EQIP programme gives school resources for improving school quality in terms of lower dropout, higher promotion rates and better attainment	All the schools participated in the programme, but in different phases	Phased in
2001	PEC	Mexico	PEC (Quality School Programme): gives schools resources for implementing a school plan, in consultation with parents; part of the money goes to infrastructure and part to teacher quality	National government targets areas; voluntary, disadvantaged urban areas	Priority to disadvantaged rural areas
1991	EDUCO	El Salvador	Community associations are responsible for administering funds, hiring / firing teachers, and monitoring and maintaining infrastructure	Municipalities and ministry of education, with the help of promoters, identified communities	Not all schools in the country participate
1999	PROHECO	Honduras	PROHECO: School councils have autonomy over hiring and firing teachers, monitoring, managing funds, and maintaining infrastructure	National government targets rural schools affected by Hurricane Mitch; social promoters approach communities to raise awareness and help in the process	Not all schools in the country participate
1994	PRONADE	Guatemala	PRONADE programme gives financial resources to communities to manage the schools	Communities must show interest to participate in the programme	Rural communities only

*Sources: Author compilation based upon: di Gropello (2006), Paes de Barros and Mendonca (1998), and Gertler et al. (2006).*

The EQIP (Education Quality Improvement Project) is a school-based grants programme implemented in 1998-2003 in Cambodia. The objective of the programme was to improve school quality in terms of educational outputs such as: lower dropout, higher promotion rates and better attainment through two mechanisms: a 'resource effect' and an upgrade of school management capacities. The schools received money that could be used to purchase additional inputs, such as teacher training, new materials, and also support for the increased participation of school members in participative planning and execution of plans. Marshall (2004) implemented a non-experimental evaluation approach, with comparisons being made between the times of entry into the programme of different municipalities. A major caveat of that study is the lack of the data for an adequate control group of schools that had never participated in the programme. A multivariate analysis was conducted to measure the impact of the resources and the upgrade of the school management capacities on student dropout, promotion rates and attainment. Three major potential problems were emphasized: selection bias, inability to control for other possible interventions and low quality data. According to Marshall, the results suggest targeted assistance not only reduced the annual average dropout rates but also led to higher promotion rates. With each year of participation in the programme the average dropout rate was lower and promotion rates were higher. The positive changes in promotion rates were of an order of between 1-2.5 percent per year. A simple calculation suggests that the programme cost \$2 per year for each student, which appears quite small, but is quite significant compared to the public expenditure per student in Cambodia which appears to be of the order of \$10 per student per year (Marshall, 2004).

The PEC Quality School Program in Mexico is a school-based grant programme for disadvantaged rural and indigenous schools which provides extra resources to primary schools. One of the most important components of the program is the School Management Support intervention known as AGEs (*Apoyo a la Gestión Escolar*). The School Management Support intervention has four phases: preparation of a school developmental plan; implementation of the school developmental plan supported by financial resources received from PEC with a focus on infrastructure and gradually shifting towards quality enhancement (more specifically teacher training and development); engagement of all the educational stakeholders such as: parent-teacher associations; increasing management

capacities through training. The impact of AGEs is assessed on intermediate school quality indicators (failure, repetition and dropout), controlling for the presence of the conditional cash transfer program. Skoufias and Shapiro (2006) utilize two methods, regression analysis and propensity score matching, to estimate the impact of PEC. Their results suggested that school-based management is an effective measure for improving outcomes, based on an over time difference-in-difference evaluation. Participation in PEC significantly decreases dropout rates by 0.24 percentage points, failure rates by 0.24 percentage points and repetition rates by 0.31 percentage points. However, this estimated impact seem quite low compared to the mean level of dropout, repetition and failure in Mexico, since the changes are equivalent to a decrease of only between 6-8 percentage in dropout, failure and repetition rates. No attempt was made to consider if this intervention was cost effective.

The PROHECO programme in Honduras aimed at enhancing access to education and increasing participation of the community in school decision-making. School councils were given autonomy over hiring and firing teachers, monitoring, managing funds, and maintaining infrastructure though within existing budgets. Evaluation of the programme suggested that PROHECO schools have higher scores in science but not in maths or language in the achievement tests (Di Gropello and Marshall 2005).

The EDUCO (Education con Participacion de la Comunidad) programme in El Salvador has a primary goal to provide greater access to schools in poor rural areas. It aimed at decentralizing some of the responsibilities to the school level and also increasing participation of the community in school management, with additional funds for infrastructure when needed apart from the existing budget. EDUCO schools were managed by an elected community education association selected from the parents of the students. The association is also responsible for contracting and removing teachers, monitoring teachers' performance and equipping and maintaining schools. The evaluation of the programme, conducted by Jimenez and Sawada (1999) using a multivariate analysis, suggests that EDUCO schools compared to non-EDUCO schools had better results in terms of attendance and attainment. However, the EDUCO schools averages were lower to start with than the non-EDUCO schools. After controlling for some characteristics such as student background

and participation bias in the sample, the differences between the two types of schools were found not to be significant.

PRONADE was introduced in Guatemala to increase access to education in rural areas; this is also an initiative to encourage improved management of schools by local communities. The objectives of the programme are defined as: better participation, attendance and less repeat students. The fund is given by the Ministry of Education in order to empower rural communities to administer and manage their schools. The funds are given to communities based on specific criteria: the community must state an interest in administering the school, must be based near to a public school, must have at least 25 primary school aged children and the teacher should not be on the government payroll. The funding was distributed to the community education association which were responsible for overall financial management depending on the school needs. A descriptive analysis on the overall implementation of the programme was conducted only. A World Bank study researched the impact of the programme on student attainment and found that when controlling for other characteristics PRONADE schools perform as well as the other schools (Wu, 2003).

### **3.7 Conclusions**

The discussion in this chapter has reviewed the evidence of the impact of government interventions in terms of performance indicators such as: student dropout, attendance and attainment, with a focus on developing countries. From the review of the policy initiatives on demand and supply side of education we conclude that initiatives that aimed at improving educational outcomes are quite common throughout developing countries. However, evaluation practices have yet to be embedded fully into the policy initiatives at the design stage of the programmes. The evidence on the impact of individual and school-based grants implemented in the developing countries suggests that individual grants have been quite successful, whereas school-based grants were somewhat successful in terms of student dropout, attendance and attainment. However, the latter effects are often relatively small and there is no agreement on the overall cost effectiveness of either individual based grants or school based grants. This review of the evaluation of such initiatives concludes that if one is



to measure cost-effectiveness, the country context must be examined thoroughly given various magnitudes of impact across countries and different levels of initial spending on education.

## CHAPTER 4 SCHOOL-BASED INTERVENTIONS IN KOSOVO

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## **4.1 Introduction**

The previous chapter examined the range of government interventions in education and focused on the evidence of the impact of demand and supply-side interventions for developing countries. The discussion in chapter 3 emphasized the popularity of such interventions throughout the world and suggested that the existing evidence on the impact of school grants on dropout, attendance and attainment rates varies by country context and type of intervention. In this chapter we move our discussion to set the background for our research: the impact of school development grants on dropout, attendance and attainment with reference to Kosovo. We initially examine such interventions for Kosovo, though the lack of individual grants directs our discussion in section 4.2 to school-based interventions to improve dropout, attendance and attainment rates. In this section, we examine the World Bank's rationale for favouring school-based interventions. In section 4.3 we discuss in detail donor-driven interventions, mainly the World Bank school based intervention in Kosovo, while section 4.4 narrows in to discuss the specific intervention which is the focus of our research in Chapters 6 and 7, which is known as the Education Participation Improvement Project (EPIP). This Project has been implemented in Kosovo since 2003. We continue in section 4.5 with a review of the existing evaluation of the EPIP programme and examine other evaluation initiatives in 4.6. . Finally, in section 4.7 we conclude our discussion of the school based interventions in Kosovo and their previous evaluation.

## **4.2 School-based interventions to improve dropout, attendance, and attainment in Kosovo**

As we have mentioned in the introduction of this chapter, a review of the existing interventions for Kosovo suggested that no individual-based interventions have been implemented in Kosovo. As a result, in this section we will focus our discussion on the existing school-based interventions which aim to lower dropout, improve attendance and attainment. We have previously examined various interventions in developing countries in section 3.6, where the cost-effectiveness of each initiative was commented on briefly when such data were available. The conclusion from that discussion implied that policy initiatives may in some cases be quite expensive to implement and are not always cost-effective.

School-based interventions are typically rather expensive, especially for resource-poor, post-conflict countries such as Kosovo, and as a result no initiatives have been funded by its government. However, other indirect government policies may have impacted on the dropout, attendance and attainment rates, such as the provision of free school books which was implemented in Kosovo from 2007, based on the Law on Primary and Secondary Education, and the extension of compulsory education to the secondary school level. The law has been changed to enable the latter, but it has yet to be fully implemented given the financial implications associated with this policy.

In addition to national governments, the World Bank is one of the pioneers in implementing school-based interventions in different parts of the world. School-based interventions were piloted in Kosovo in 2001-2002 and the main programme introduced for the first time by the World Bank in 2003. In Kosovo separate intervention by different donors was avoided, since the Soros Foundation and the Canadian Agency for International Development (CIDA) provided funds for the project initially developed by the World Bank.

In the process of determining the form of the intervention, the World Bank (World Bank, 2003) considered the following types of policies:

**a) Conditional cash transfers:** As we have discussed in the previous chapter, conditional transfers have been found to be one of the most efficient ways of improving attendance and can encourage the sending of children to school. However conditional cash transfers have not been found to be effective in reducing child labour. Also, a social assessment carried out under the Poverty Assessment Programme in Kosovo (World Bank, 2001) suggested that the financial constraints are only one of the reasons for children not going to school. As discussed in section 3.4, expected outcomes from such interventions in both developing and developed countries are various: poverty alleviation, lower child labour rates, higher schooling gains in terms of higher attendance and participation and lower dropout rates. Cash payments may be considered as a complementary measure to assist marginalized families, providing added incentives to encourage children from these families to enrol and attend school. However, the implementation of this kind of programme in Kosovo would require

expertise, currently lacking, and data which, given the lack of household level information, was not available at this time.

**b) Improved access to schools:** The World Bank considered improving transportation arrangements in terms of better road infrastructure for students to ensure improved school access. However, implementation of such an initiative would require financial resources which were not possible within the budget ceilings of this programme. As a result, the World Bank noted that provision of transportation for students could be funded under the school development grants programme.

**c) Provision of school textbooks:** Provision of school textbooks to students was seen as a possibility; however it was not deemed financially attainable considering the financial burden to the programme. However, the Ministry of Education, Science and Technology have taken responsibility under the Law on Primary and Secondary education for providing student textbooks free of charge.

**d) Strengthening national level decision-making:** As discussed in section 1.2.3 recent reforms on education financing make this policy of strengthening the national level of decision making inappropriate considering that World Bank programme's focus is on local and municipal levels rather than the national level.

**e) Primary or secondary school education:** Even though the World Bank acknowledged that secondary school education may have greater deficiencies in terms of educational outcomes it was decided that there was still room for improvement in terms of educational outcomes at the primary level, and the programme worked with both primary and secondary levels of education.

**f) Competition or targeting specific schools:** The World Bank programme selection of schools was done through set criteria which are discussed and evaluated in section 4.4.3.

**g) Nature of the intervention:** World Bank financing through its International Development Association (IDA) can be done through lending or grants. However, since Kosovo was still under United Nations administration and was not eligible for lending at that time World Bank implemented a grant programme.

**h) Public-Private institutions:** As discussed in section 1.2.6, there has been an increase in private institutions in the Kosovo education system; however this was mainly higher education institutions and the World Bank programme covers public schools only.

After consideration of various possible interventions the World Bank focused on implementing a school-based intervention which is discussed in more detail in the following section.

#### **4.3 World Bank school-based interventions in Kosovo**

The school development grants programme was piloted in 2001-2002 as an Education and Health Project of the World Bank. The aim of the pilot project for the Education and Health Project was to investigate the country context for possible education programme modalities that could be implemented in Kosovo. More, specifically, the World Bank was interested in policies in terms of improving educational outcomes that lead to improvement in the quality of education provided.

The World Bank programme (World Bank, 2003) targeted the following areas with the aim of improving the quality of education:

- Reduction of disparities in terms of access, retention and completion by provision of financial incentives to schools. The justification behind this was creation of an improved schooling environment with the aim to improve participation, attendance for primary and secondary schooling particularly for disadvantaged groups based on their ethnicity and gender.
- Strengthening school level education planning by improving school-based management of the stakeholders (staff members, principals, school boards) through various capacity building activities.
- Better school effectiveness in order to improve educational outcomes through grants that support various school-based initiatives and lead to an increase in the overall quality of teaching and learning.
- Improving local and municipal capacity through the upgrading of the education management information system (EMIS) in recording performance indicators data such as: enrolment, attendance, attainment.

The main objective of the programme was to enhance educational outcomes for both primary and secondary school education whilst also ensuring improved access for marginalized groups. The World Bank's intervention in Kosovo identified the following measurable key performance indicators: a) lower dropout rates in the treatment schools; b) improved enrolment and attendance rates with a focus on the primary level; c) improved continuation and attainment rates for the secondary level of education.

The World Bank funded an IDA (International Development Association) grant for implementation of the Education Participation Improvement Project (EPIP) of 14.5 million USD. The programme was implemented in Kosovo from 2003 in two phases known as: Education Participation Improvement Project I (EPIP I) and Education Participation Improvement Project II (EPIP II). In the following section we discuss this programme in more detail.

#### **4.4 Education Participation Improvement Projects I and II**

##### **4.4.1 Project Objective - EPIP I and EPIP II**

The objective of the EPIP I implemented between 2003 and 2006 was to improve educational outcomes at primary and secondary education levels in Kosovo, whereas the overall objective of the EPIP II was to improve school capacities in terms of human capacity in order to improve the quality of education. The latter emphasis contrasts with that of the EPIP I programme which focused on improving the physical infrastructure in order to ensure better access. EPIP II, implemented between 2007 and 2010, was intended to provide financial resources that helped towards the improvement of student access and attainment. EPIP I and II relied upon the provision of expert training and in-house expertise to strengthen local capacities of the community as a whole by working through schools. As explained in section 1.2.4, part of the education financing by the Kosovo government is disbursed to the municipalities. Thus the EPIP I and II also focused on increasing their capacity to manage such funding. In addition, using participatory approaches schools were encouraged to work closely with their stakeholders (such as parents, community, municipal officials and other local education authorities) starting with the planning process up to monitoring and

evaluation. In the course of six years more than half of Kosovo's primary and secondary schools benefited from this Project.

#### **4.4.2 Project Components EPIP I and EPIP II**

The World Bank programmes EPIP I and EPIP II had similar project components. The major one, which was identical in the two programmes, was the school development grants component. EPIP I had also an education management information systems component, whereas EPIP II's other component was municipal education grants. The focus in what follows is on the school development grants component of EPIP I and EPIP II, with a brief discussion of the other two components (World Bank, 2007).

##### ***School Development Grants (SDG)***

The objective of the SDG component was to provide funding to schools to help increase enrolment, attendance, and retention in primary and secondary education. Through the SDG process, approximately 3.8 million USD in grant funding was awarded during the two programmes, divided between approximately 60 percent of the 760 primary and secondary schools in Kosovo. Primary schools were eligible for grants up to 10,000 USD and secondary schools were eligible for grants up to 15,000 USD for the EPIP I. Amounts decreased to 7,000 USD for primary schools and 9,000 USD for secondary schools in EPIP II. These grants were awarded on the basis of pre-set criteria which will be discussed in detail in the following section. A School Development Grants Manual was developed and served as the base document for schools grant awards. The grants financed a range of activities such as training, community outreach activities, educational materials and school supplies, and some small infrastructure improvements aimed at improving safety and the educational environment. Schools were also audited randomly in order to ensure accountability and justification for their grant's expenditures. The detailed information regarding the school development grants' procedures and criteria is analysed in section 4.4.3.

#### **4.4.3 Education Management Information System (EMIS)**

The objective of this second component was to help strengthen and ensure the sustainability of the EMIS, which was designed and initiated under the Education and Health Project



conducted in 2001-2002. More specifically, the idea behind the EMIS upgrade was to facilitate the monitoring of enrolment, attendance, repetition, dropout and completion, as well as try to account for children in the targeted municipalities who were not participating in the school system.

The World Bank acknowledged the difficulty in assessing the quality and eligibility of the proposals due to the lack of the reliable data. As such, they attempted to upgrade the EMIS component, aiming to enable data collection to enable assessment of whether the project objectives were achieved. The desired outcome of such intervention was that the schools would have data readily available and the impact of the interventions could be, in principle, be evaluated. This data would be used by various education stakeholders such as: the Ministry of Education, Science and Technology and donors.

### ***Municipality Education Development Grants (MEDG)***

The decentralization of finance from the central to the municipal level, which is discussed more in detail in section 1.2.4, was the main justification for the introduction of the municipal education grants. Depending on the number of the schools covered by each municipality, they were able to receive 15,000 – 30,000 USD per municipality. The idea behind MEDGs was to encourage and enable an increased level of cooperation between schools, community and their local municipal education office. Selected municipalities formed a Municipal Education Grant Committee which consisted of five members: two school representatives, a community representative and the director and finance officer of the Municipal Education Directorate (MED). As such schools were able to apply with different ideas and projects for the municipality-wide activities. As a requirement for receiving the grant the municipalities had also to develop a development plan which was a three year plan developed to support the municipality in its strategic planning for education. The proposed plans were assessed through ‘positive’ and ‘negative’ criteria lists. The ‘positive’ list included inclusive education programs, support for textbooks, teacher training, extra curriculum activities and any other activities that sought to improve quality. In the ‘negative’ list were proposals for infrastructure and additional salaries for officials, school principals or teachers.

#### **4.4.4 School development grants explained**

##### ***Aims of the SDGs***

The target groups of the school development grants were the poor and ethnic minorities.

The school development grants had multiple aims (World Bank, 2007):

- Provision of funding to increase the number of registered students, attendance and completion of the primary and secondary education.
- Creation of a better teaching and learning environment.
- Better student and teacher output in terms of creativity.
- Improvement in the quality of education.
- Active participation of the community and parents.
- Strengthening of the school boards.

Each of Kosovo's 30 municipalities established a Municipal School Grants Team (MSGT) during 2003-2006 which were comprised of Regional Education Officers assigned by MEST and Municipal Education Directors which are elected in the municipality, a parent, school board member and a school director. The MSGT were in charge of selecting the schools on the basis of established criteria, assessing the proposals before they are evaluated in comparison with other municipalities and monitoring implementation.

The MED initially chose eligible schools based on a first initial analysis of data related to dropout, attendance and retention and also based on the proportion of the students from minority groups and level of poverty of the respective municipality. The Municipal Team selected schools for receipt of the grants based on the criteria discussed in the following paragraphs.

There are seven geographical regions in Kosovo, each with a respective MED for that region. The MED gathers information on the schools based on the following: gender equality index, registration profile, minority groups' registration and classification of the social welfare beneficiaries. Initially, the MED prepared a classification list with all schools that fulfil the criteria, which was reviewed at a School Grant Approval Board (SGAB) meeting. The review then assessed if the following criteria were met (MEST, 2007):

- a. Poverty – Schools that are in the list are once again reviewed if they have met the poverty criteria. Other possible schools are added if they met the criteria but were not in the list initially.
- b. Non-inclusiveness - other schools are assessed to check if any of the schools were left out but fulfil the criteria
- c. Schools with difficulties - are there schools that are in worse conditions as a result of damage or carelessness in comparison with those on the list?
- d. Attendance problems - are there any schools that are not included in the list in which students experience problems of attendance due to security reasons, access, work or other factors?

The gender equality index is expressed as the number of male students divided by the number of female students. If this index was above one the assumption was that there are still pupils which are not registered. This index is of limited validity for secondary schools for various reasons. Secondary schools in Kosovo offer different academic and vocational streams and a pupil chooses which stream to apply to and join. There is a tendency for female pupils to crowd into a few of the streams of the vocational schools, such as medical, whereas male pupils are more likely to prefer other streams such as the technical stream which is based in different schools. In the general math and science stream the percentages of the male and female pupils do not differ so greatly.

Registration Profile - (Classes of primary levels 1-9; classes of secondary levels 10-12 and 13). This was calculated as the number of pupils that are registered in the first grade ( $P$ = class I,  $S$ = class 10) and is divided by the number of students in the last grade of the school. The registration profile indicator provides us with an initial perception of the possible size of dropout in the school. However, even significant differences in these percentages do not imply directly that this is due to differences in dropout ratios as pupil movement between schools also needs to be accounted for. Pupil movement may be due to internal migration, other local school transfers or external transfer through international migration.

Enrolment of minority groups indicator - (enrolment of the marginalized groups that were previously disfavoured). This is expressed as a percentage and is calculated as the number of children from the Roma, Ashkalia and Egyptian communities divided by the total enrolment. The assumption was that a low presence of the minority group children, as calculated by the indicator, suggests that the minority groups were not supported sufficiently. However, it should be noted that minority groups are frequently concentrated in specific areas rather than being spread evenly throughout Kosovo. Given these considerations the final school list was prepared, based on all the checks against the above indicators, with the final SGAB decision being consensual. If such a decision was not reached, the final school list was decided by voting. Based on the data from EMIS the municipality calculated the amounts that primary and secondary schools could receive. Each school received an initial amount of 4500 USD for primary schools and 5500 USD for secondary schools plus 7.5 USD per pupil.

Selected schools received training and outreach from a technical assistance provider to strengthen the capacity of their management, school boards and municipal education officials. The schools received training in the participatory approach methodology, school development planning, project proposal, finance and procurement procedures. The grant proposals were developed on the basis of a School Grant Manual and a grant application was developed under the pilot phase of the project and further refined to suit the EPIP. Grant proposals contained sections covering: the objectives and rationale of the proposal; the activities that were going to be undertaken to achieve the objectives; who was to be responsible for carrying out the activities; and a budget indicating what resources were needed. The grant proposals were reviewed and rejected if the planned activities or budgets asked for funding for the following items: salaries and wages, per diems for staff, activities that were not part of the school development plans, utilities (electricity, water, heating) and other recurrent expenditures, economic and political activities and activities that would lead to discrimination against minority groups. EPIP II was focused on raising the quality of education in terms of improving management capacities, teacher training etc. and as a result investments in infrastructure were significantly reduced. As such the activities developed under grants proposals should be in compliance with the Law on Primary and Secondary Education and the Law on Public Financial Management.

In order to try to ensure ownership of the processes and community commitment to the overall processes, schools and community were asked to contribute 5% of the overall amount requested. Such a contribution could be a financial one, funded by parents, the wider community, teachers or other contributors, or in-kind contributions such as tools and equipment or voluntary work. The proposed activities approved for the school grants were limited to activities that were not financed or implemented by other donors.

Under EPIP I a total of 604 projects were funded by school development grants component with about 300,000 student beneficiaries. An additional 90 projects were funded under EPIP II. The Table below shows the types of the project which schools have implemented. The projects were different and varied from infrastructure improvement, learning tools such as acquiring computers and text books, transportation, and teacher training. The Table below shows the distribution of the funds among these categories and it can be observed that apart from the fourth round infrastructure accounted for the largest percentage of the funding.

**Table 4.1 World Bank School Development Grants (2003-06)<sup>2</sup>**

Type of Project (% of total)	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Total
Infrastructure Improvement <sup>2</sup> (%)	58.2	70.2	62.2	38.0	50.0	62.0	55.8
Computer cabinets, musical instruments, craft equipment (%)	27.6	13.8	38.8	38.0	38.6	20.8	29.6
Textbooks (%)	16.3	7.4	5.1	23.1	18.8	14.2	14.1
Transportation (%)	3.1	7.4	3.1	0.0	1.0	2.0	2.76
Teacher training (%)	6.1	1.1	2.2	0.9	5.0	0.0	2.55
<b>Total no. of schools</b>	<b>96</b>	<b>107</b>	<b>102</b>	<b>108</b>	<b>101</b>	<b>90</b>	<b>604</b>

Source: PCU, Project Monitoring and Evaluation (June and November 2006)

#### 4.5 Previous external evaluation of the EPIP I and EPIP II

Before examining further the evaluation of the policy initiatives implemented in Kosovo we briefly look at the evaluation methods utilized in other developing countries in order to get some insight as to the most appropriate methods to be utilized for this purpose.

<sup>1</sup> Not all of the percentages in the columns of this Table add up to 100%. However, the figures presented are those recorded in the source document.

<sup>2</sup> Included sanitation facilities, fences, roofs, water supply, sports grounds and classroom renovation.

As discussed in section 2.7, statistical methods are quite popular in educational research in developing countries. Most of the existing outcome evaluations of education policy initiatives use quasi experimental approaches. Many of these employ difference-in-difference methods to determine the counterfactual. However, the difference in difference method does not control for other changes over time, as considered in section 2.6. The EQIP (Education Quality Improvement Project) programme evaluation implemented in Cambodia, referred to in the previous chapter, measured the programme impact on student outcomes such as promotion, dropout and academic achievement by conducting a statistical analysis. It used three main methods to compare schools: t-tests, difference in difference estimators and multivariate analysis. Attanasio et al. (2005) measured the impact of education subsidies on enrolment in Colombia by using pre-programme and post-programme data on outcomes in a differences-in-differences framework. A baseline and follow-up survey was conducted to measure pre- and post-programme differences. Schultz, (2001) also evaluated the impact of school subsidies on enrolment by utilizing difference in difference estimators, whilst Glewe and Olinto (2004) assessed the impact of the grants on educational outcomes of children in rural Honduras through two methods: a cross-sectional difference estimator and a difference-in-difference estimator. Skoufias and Shapiro (2006) use regression analysis and propensity score matching in Mexican public schools to measure the impact of the educational grants on dropout, repetition and failure rates.

Raymond and Sadoulet (2003) assessed the effectiveness of the school grants on schooling of poor children in rural areas in Mexico by estimating the impact on dropout rates and attainment rates through predicted hazard rates and use of the Cox proportional hazard model. The Cox model controls for the influence of explanatory variables, such as students' characteristics, on the impact of the educational grants on attainment. They utilized the propensity score matching method to create a counterfactual and estimated the programme impact through regression analysis and a difference-in-difference matching estimator, examining the main outcome variable averages such as dropout, repetition and failure rates.

A review of the literature suggests that non-experimental approaches are the preferred design in educational research, using techniques such as difference-in-difference estimators to try to determine the counterfactual. However, as discussed in section 2.6 this method does assume that the treatment is independent of the outcome without treatment (Wooldridge, 2002, p. 606). In the section below we examine the methods used for the purpose of evaluation in Kosovo.

#### **4.5.1 EPIP I**

The World Bank programme in Kosovo, specifically the school development grants component, has gone through an ‘evaluation’ resulting from a joint initiative of two parties: the World Bank and the beneficiary of the programme, which is the Ministry of Education, Science and Technology (MEST). However, it was only the external experts engaged by the World Bank that attempted to complete a formal, structured evaluation of the EPIP I programme. The beneficiary, MEST, only issued a formal appreciation letter in which they elaborate the successes and benefits of carrying out such a programme and state the impact it had in the Kosovo education system in general, but without providing any supporting evidence. The World Bank’s external evaluation attempted to assess the main outcomes of the school development grants in the following design terms: effectiveness, efficiency, relevance and sustainability (World Bank, 2006). Each of these four mentioned terms consists of a set of evaluation questions adapted for this research. The evaluation questions on ‘effectiveness’ deal with changes in attendance, dropout and completion. ‘Efficiency’ is more focused on expenditures per child and comparability with the government spending. Whilst ‘relevance’ attempts to answer whether the project input met the schools and community needs in general and finally the ‘sustainability’ evaluation questions deal with the value added in terms of educational reforms and possible extension of the programme beyond the project phase. In the context of the external evaluation of an educational programme one would assume that the ‘efficiency’ questions would not only deal with inputs but it rather examines the relationship between inputs and outputs. For an effective evaluation the ‘efficiency’ concept should measure the project outcomes in terms of the utilized resources and value added in the trends of dropout, attendance and completion.

Before examining further above mentioned research questions we look at the design of the World Bank's evaluation methodology.

The World Bank's evaluation (World Bank, 2006) was carried out through the utilization of the following methods:

- a. Desk review – all the documentation drafted throughout the project was collected and analysed by the researchers;
- b. Focus groups – 18 focus groups and seven interviews in total were conducted with the following education stakeholders: school management, teachers, parents and students. These were conducted in five of Kosovo's regions: Prishtina, Peja, Gjilan, Mitrovica and Prizren. Three focus groups and nine interviews were conducted with education policymakers from education offices and ministry.
- c. Survey – A sample of 160 participating schools were chosen randomly out of the 604 participating schools based on the following criteria: urban/rural, school size, mono/multi-cultural aspects. A questionnaire was designed with open and closed questions to gather data on the perceptions of school principals and regional and municipal education officials on the overall functioning of the EPIP programme. The evaluation was structured in a manner that first looked at the effectiveness, efficiency and relevance and then it focused on sustainability.

As can be seen above, the World Bank's evaluation utilized various methods in the external evaluation of the EPIP programme. However, the design of the evaluation is such that the research questions on effectiveness which are to do with the dropout, attendance, and attainment trends<sup>3</sup> cannot be answered with the chosen methods. The evaluation lacks data on the counterfactual which would provide more information on what outcome would be expected for those who have not benefited from the programme. As a result it fails to utilize a comparison group in order to measure the impact that the programme may have had on dropout, attendance, and attainment rates. The focus groups, interviews and survey questions were only designed to give the perceptions of interested parties of what may have been the

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<sup>3</sup> There is a variation in the terms utilized by the World Bank for indicators such as: dropout, attendance, completion, enrolment, attainment. In the following we will use the terms dropout, attendance and attainment.



impact in these areas. Thus completion of such an evaluation can only draw conclusions on what the perceptions are, rather than the actual impact. However, the abovementioned methods may still provide valuable insights into the answers to these questions since most types of the education stakeholders took part in some form: interview, focus group or survey. We examine below in more detail the research questions for each term separately: effectiveness, efficiency, relevance and sustainability.

The evaluation examines ‘effectiveness’ and defines it in terms of answering evaluation questions such as: a. the impact of the programme on dropout, attendance and attainment, b. the overall project procedures; c. the level of the involvement of the different stakeholders such as parents, teachers, communities and schools boards before and after, and the overall impact on the process of learning for the participating schools only. We now discuss each question in more detail.

a. The evaluation on the trends of dropout, attendance and attainment only carried out a descriptive analysis with no attempt to consider a counterfactual. The justification for such weaknesses is the poor functioning of the overall Education Management Information System and the absence in particular of before data on the trends of dropout, attendance and attainment. The authors of this evaluation in measuring the impact and the trends on dropout, attendance and attainment relied on a desk review of the previous reports that were published by various parties and survey results. Apart from that, the lack of identification of and collection of data for a counterfactual in this evaluation did not allow for isolating the impacts of other initiatives. The evaluation team noted any changes in participation rates from previous reported rates, though they acknowledged that the apparently increased rates of participation during the EPIP programme may have been affected by other factors, such as the introduction of a government policy on re-organization of the school years, and as such the improved performance may not be the result of the programme being evaluated. The Law on Primary and Secondary Education introduced compulsory schooling to the middle high school level which resulted in re-organization of the school levels as per the ISCED categories and led to the introduction of the ninth grade as a part of the primary education, which therefore automatically became compulsory. The World Bank’s survey which was part of the external evaluation attempts to shed some light on the trends of attendance, dropout

and completion, but it is based on perceptions rather than actual data. The survey measures the perceptions of the extent to which the project has impacted on dropout, attendance and completion and it reports that 90% of school principals and regional and municipal officials reported their perception was that the trends have improved. However, the evaluators emphasize the limitations of such perceptions as these are subjective and these groups may tend to 'avoid' or 'underestimate' the dropout phenomenon as the evaluation team came across a general lack of awareness of the dropout issue among parents, teachers and the community. According to the World Bank's evaluation the conclusion on this major objective suggests that the trends are 'positive' and this was 'confirmed' by the general opinion of the all education stakeholders such as: Ministry of Education, Science and Technology, Municipal Education Directorate (MED) officials, school directors, teachers, parents and community members.

b. The research evidence concerning the question on the selection criteria for schools and other administrative procedures in the programme suggests that these were fair and clear. Such a conclusion is based on the beneficiaries' opinion and as such may be deemed as biased since no opinions were gathered from other non-participating schools. Also, evaluators have not compared the selected schools against the selection criteria as outlined in section 4.4.3. The effectiveness of the selection of the schools appears to be one of the key issues facing programmes of a similar nature. The evidence behind the 'fair and clear' conclusion is that the project generated no major complaints concerning the selection process.

c. On the level of the engagement of the different stakeholders such as: parents, teachers, communities and schools boards before and after, and the overall impact on the process of learning at the school level, the report suggests that there is a general perception of some additional involvement of the school boards, parents, communities in schools. However, it reports a rather low percentage of community and parental involvement.

The evaluation further looks at efficiency with the following research questions: expenditure per child, which the report tends to measure and assess relative to the Kosovo government spending per child. The report examines the distribution of the grants across schools and concludes that the smaller schools benefited more, but fails to relate such a distribution to the

impact of the project. The description of the expenditures per child and the assessment of how it compares with government spending does not relate to an assessment of the underlying economic efficiency of the project. The researchers rather should have looked whether the programme was efficient in producing outputs in terms of the identified performance indicators compared to costs, rather than just assess how much was spent from the programme in addition to the government expenditure per child.

The ‘relevance’ part of the external evaluation examines the extent of the project and its capability to respond the needs of the beneficiaries, such as schools, and its correspondence with the existing national strategies. The survey suggested that the perceptions of school directors, regional and municipal education officials confirmed that the project met the needs and priorities set by the existing national strategies. However, such a conclusion is again subjective considering that it was only the beneficiaries that participated in the evaluation and no other stakeholders were involved.

The last part of the evaluation looks at ‘sustainability’, which measures the value added of the overall project at the school level and municipal level in terms of building capacities, ownership of the processes, and at the government level in terms of integration of the project aims into the education system. The evaluation authors only examined the value added through a desk review and the survey and concluded that that the project’s contribution lies in fostering the emergence of the main strategy documents that did not exist before the school development grants programme started.

In conclusion, the evaluation proposes recommendations for the project, education policy and municipalities. The authors conclude that the programme should continue as such, with some minor refinements. An important change which emerged from the Report is the shift of focus from improvement of the infrastructure to quality assurance and an increased monitoring of the relationship between the individual school projects and the overall objectives of the programme. However, the evaluation fails to provide evidence supporting the main recommendation that the programme should continue in its initial form without any major alteration, nor for the recommended change of focus. Looking at the national context,

financial resources in developing countries such as Kosovo are extremely limited therefore any additional financial inputs to the school should not be allocated without rigorous quality management. Overall, this evaluation failed to show that the programme served its purpose of achieving improvements in dropout, attendance and attainment.

Among the education policy related recommendations the Report suggests that the integration of the project into the Ministry's existing Education Strategy would lead to greater recognition of the importance of the programme from the government. This would include the development of effective mechanisms for monitoring and evaluation of the schools at the regional level. This requires that student-based software should be developed and implemented in order to monitor trends in attendance, dropout and completion rates, as well as implementing a nation-wide consolidated EMIS which would trigger a better data gathering process and enable appropriate monitoring of such processes.

The World Bank's evaluation attempted to draw a number of education initiatives policy recommendations that could offer a framework of reference for future similar or new programmes, but these were not evidence based. Relying heavily upon a survey of the perceptions of the school management on the overall impact of the programme is at best partial and does not provide evidence on the actual impact in terms of the targeted performance indicators. The evaluation results suggest that the project had more impact on the overall education system rather than the specific objectives of improving the trends of attendance, dropout and completion. However, the accuracy of such a conclusion is doubtful since the causes and extent of changes in the overall education system are less measurable and even harder to isolate, bearing in mind all possible changes and processes that could occur at the same time in the education system. The overall conclusion of the evaluation is that the outreach process has had a positive impact on the participating schools and that both school and municipal officials are now focused on dealing with problems in dropout, attendance and student completion. According to the World Bank the impact of the programme on the educational outcomes should appear in the future data as a result of this intervention. However, the World Bank report fails to provide a sound argument and analysis for such a positive conclusion.

The evaluation also made recommendations for improving the implementation of the training and school development planning process and for increasing the role, capacity and commitment of the stakeholders in the project. Among the Report's recommendations are: to strengthen the role of school boards in providing outreach to the local community; to extend the training provided to municipalities; and to involve more actively the Regional Education Officers working on the school grant programme at the level of municipalities. The evaluators were focused on the value added that the project brought to the overall education system. Yet, the evaluators did identify that the objectives of the project were too general and failed to isolate the impact on attendance, dropout and completion. The authors acknowledged that the external evaluation of the EPIP objectives fails to offer project-related quantitative data that the Project development objectives have been fulfilled. Moreover, they focus on secondary issues such as efficiency, relevance and sustainability of the programme but even there fail to isolate what is the impact of the programme. The project also claims the creation of positive externalities, labelled by authors as 'unexpected results', such as increased public awareness, beneficial impact of a more effective decentralized system; however, there is no evidence presented for such conclusions.

#### **4.5.2 EPIP II**

The external evaluation of the EPIP II programme also attempted to answer the questions on the effectiveness, efficiency, relevance and sustainability of the programme. The research methodology again included the following elements: desk review, focus groups, interviews and a survey conducted by the World Bank evaluation team. In addition to these, the evaluators also attempted to utilize a quasi experimental method to estimate the impact of the school development grants on enrolment, but due to the difficulties with the lack of data these results were only reported in an annex as an addition to the main report. The evaluators noted the lack of school-level data and visited all primary schools in one municipality who took part in the programme and a control group of 13 non-participants. They produced percentages on enrolments by control and experimental groups, by gender, but no inferential statistics were utilised.

The evaluators acknowledged that their appraisal of the project is similar to that of EPIP I due to lack of data, concluding that their evaluation provides no results on the impact of the school development grants on the targeted educational outcomes (World Bank, 2009). As a result in the future the evaluators suggested conducting the programme in a format of action research, where the data are gathered as part of the experimental design with both pre- and post- intervention data being collected.

#### **4.6 Other evaluation initiatives**

In addition to these two attempts, reviewed above, to evaluate a policy initiative in the Kosovar educational setting, one other survey has tried to disentangle the determinants of dropout in compulsory and post-secondary education. Riinvest conducted a survey in 2009 (Riinvest, 2009) with 150 pupils/students that dropped out from compulsory and upper secondary schooling to determine the determinants of dropping-out, the training needs of those who had dropped-out and their future plans for schooling. They also interviewed around 30 directors, school teachers and some of the parents of students who have dropped out from schooling. This survey was conducted in five municipalities: Prishtina (including Municipality of Fushe Kosova where a significant Roma, Ashkalia and Egyptian community is situated), Prizren (where Turk and Bosnian communities are situated), Skenderaj (which has a low level of household income and the percentage of dropout is high), Gjilan (including the Municipality of Sterpce where a Serbian community is situated) and Gjakova. The research conducted failed to compare the characteristics of dropout with those that continued with their schooling but rather was a review of the effects of dropping out of compulsory and post-compulsory education and discovering the whereabouts of the dropout. As such it served more as a stocktaking report and it acknowledged difficulties in accessing data on dropout rather than generating findings on the planned research questions.

#### **4.7 Conclusions**

In this chapter school-based interventions to improve dropout, attendance and attainment rates in Kosovo have been reviewed. The emphasis was on the World Bank intervention known as the Education Participation Improvement Programme which was implemented in two phases I and II. The focus in this chapter was to critically review the previous external

evaluations of the EPIP programme in Kosovo. This chapter concludes that previous policy evaluations have evaluated only the process of the EPIP programme, they have failed to conduct an appropriate impact evaluation in terms of educational outcomes. However, it is noted that both evaluations have confirmed that part of the difficulty in conducting such an evaluation concerns data availability and reliability. The latter is the focus of the following chapter which discusses in more detail appropriate methods for our own research.

## **CHAPTER 5 DEVELOPING AN APPROACH TO EVALUATING THE IMPACT OF SCHOOL DEVELOPMENT GRANTS IN KOSOVO**

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## **5.1 Introduction**

In chapter 4 we critically reviewed the policy evaluations carried out in Kosovo addressed at school dropout, attendance and attainment. The evaluation of such policies in Kosovo is in its infancy and has not yet managed to establish reliable evidence base given the absence of the application of rigorous econometric methods in evaluating policy initiatives. The lack of such studies can at least in part be attributed to the lack of research and development activities in Kosovo (which account for less than 0.1 as a percent of GDP) and, at best, the low quality data, which is discussed in detail in section 5.4 below. This evaluation of the impact of the schools' grants on student dropout, attendance and attainment presented in this thesis is the first attempted in Kosovo using an econometric approach. It is expected that conclusions from this evaluation will inform schooling policy in Kosovo and assist the identification of spending priorities. It may also stimulate recommendations to the government of Kosovo on how to improve education data collection and monitoring processes and introduce better and more appropriate appraisal methods that could be used in future educational research and policy evaluation. The latter may also be of interest to international agencies funding similar interventions given the limitations of previous evaluations of other similar schemes in developing countries, for example Cambodia, as discussed in section 3.6.2.

This chapter is organized as follows: section 5.2 critically reviews internal threats to validity in the evaluation of policy initiatives. Section 5.3 examines the rationale behind the research and surveys methods and analysis used in educational research to appraise dropout, attendance and attainment and discusses their appropriateness for the current research. Section 5.4 describes the chosen research design and its dependence on data availability and reliability and finally section 5.5 concludes our discussion.

## **5.2 Internal threats to validity in the evaluation of policy initiatives**

Previous education policy evaluations in Kosovo have failed to include all the elements of a comprehensive evaluation, that is monitoring, process evaluation and impact evaluation, as discussed in section 4.2. Education initiatives funded by development partners, aiming to

reduce dropout and improve student attendance and attainment in Kosovo schools, have been implemented for several years. However, such initiatives have not yet managed to provide evidence on their impact on these aspects of educational performance. The objective of the World Bank funded Education Participation Improvement Project (EPIP) was to improve educational attainment in primary and secondary education and enhance the access of vulnerable groups to education in Kosovo by supporting school-based initiatives to address those types of problems. The EPIP evaluation previously undertaken, discussed in chapter 4, focused on implementation, procedures and processes, but not on an assessment of the measurable outcomes. It looked closely at project implementation providing judgments on project effectiveness, efficiency, relevance and sustainability. This failure to address the key issue of measurement of the impact of the policy on the specified outcomes cannot be attributed only to failure in research design.

A major difficulty is the lack of reliable data which is problematic not only in Kosovo, but has been the case in other developing such as Cambodia which is discussed in this section. This current research undertakes an impact evaluation which will examine the effect of the programme on the schools targeted and whether such effect can be attributed to the policy or other changes. Researchers (for example IEG, 2009, Khandker et al., 2010) argue that even when the objective of the evaluation is to assess the impact of an intervention it is important to disentangle and study the process of the programme's implementation. Such processes help in the creation of a better understanding of what led to the outcomes and why some of them were achieved and some not (IEG, 2009). We will use the previously conducted evaluations as supplementary to our own analysis and as an additional input into the conclusions and policy recommendations.

We will use as a key reference a study related to implementation of a programme similar to EPIP which was discussed in section 3.6.2 and is suitable for adaptation to the Kosovo context. The EQIP (Education Quality Improvement Project) addressed school quality in 1998 in Cambodia through two mechanisms: creating a resource effect by giving school grants and improving school capacities through participation in the project. This project was

utilized by Marshall (2004) in an assessment of the impact of such interventions in this educational policy setting. The Cambodian study serves as a reference for the evaluation presented here, though refinements to its research design are introduced, for example the econometric methods used are extended, and the approach is adapted to the Kosovar situation. Throughout this chapter the differences and similarities between the Cambodian and Kosovar research will be explained.

As we have emphasized in section 4.5, evaluations in education research are frequently constrained by various shortcomings in the design phase of an intervention and as a consequence this impacts on the validity of the assessment. Cook and Campbell (1979) define validity as the “best available approximation to the truth or falsity of a given inference, proposition or conclusion” (p.37). The definition given by these authors is one of the most commonly cited definitions of ‘validity’, however one could argue that the pursuit of ‘truth’, as opposed to falsification, is not attainable in empirical research and hence does not represent a suitable objective for researchers. Two types of validity are normally identified: internal and external. Internal validity questions the causal relationship between the programme and outcome and subsequently if the differences in the dependent variables are consequential of the differences in the independent variables (Meyer 1995). More specifically in our research we would wish to draw an inference as to whether there is a causal relationship between the implementation of the programme and the outcome, that is, has the school grant impacted on dropout, attendance and attainment rates, or were any changes that occurred due to other factors that altered over the period of the initiative. External validity is related to the assumption of whether the outcomes can be generalized for the population. In our own research this would mean that the results of the impact of the school grants on dropout, attendance and attainment can be generalized for all the schools that had undergone treatment and other schools that had not participated. The latter with the assumption that a similar impact would be found in other schools, keeping other factors constant, if they received the same school development grant. Cook and Campbell (1979) designed a list of possible internal and external validity threats and this list has been expanded by other researchers who attempted to make it appropriate for different fields. Meyer (1995) attempted to make such concerns more relevant to economic-based policy

evaluations and suggested the following possible econometric problems regarding internal validity: (1) omitted variables; (2) measurement errors; (3) trends in outcomes; (4) misspecified variances; (5) simultaneity; and (6) selection and attrition. Meyer's list of the possible internal threats is not mutually exclusive due to the interconnectedness among different concerns and one could even add to that list, for example a further threat to the internal validity of the policy initiative could be from functional form misspecification.

For the purpose of this research in this subsection we will concentrate on the internal threats to validity of the EPIP policy initiative. The main issues typically faced in education settings are the occurrence of (1) endogeneity, (2) selection bias and (3) missing data.

(1) **Endogeneity** arises when independent variables are correlated with the error term and as a result break the assumptions of the Classical Linear Regression Model. It usually appears as a result of: omitted variables, measurement error and/or simultaneity. Omitted variables tend to be more relevant to this research due to data unavailability, which as a result can lead to biased and inconsistent estimators. Omitted variables occur when we would like to control for one or more variables but due to lack of data they are not included in the final regression model. In this case there is at least one variable that we would like to hold fixed when estimating the *ceteris paribus* effect of one or more of the observed explanatory variables. The effect on the evaluation is likely to be particularly problematic if the missing variable is highly correlated with the policy variable. In the case of our research we tried to include sufficient controls (and were arguably more successful than in other similar programme outcome assessment studies in developing countries), but as discussed briefly below and in more detail in section 5.4, data limitations did constrain our modelling.

The critical review of the determinants of student dropout, attendance and attainment conducted in section 2.4 emphasizes the likely importance of the socio-economic status of students. For the purpose of our own research we have managed to gather some data on the economic status of the children for the model but failed to gather data on their social status, specifically their parents' education. Data on parents' education is not available at student or school level either from the Ministry of Education or Statistical Office in Kosovo. Thus this

is an example of a possible omitted variable in our research, since as suggested in section 2.4, parents' education is likely to be a determinant of their children's dropout, attendance and attainment rates. Wooldridge (2002) suggests that in the case of omitted variables a proxy variable could be used for the unobserved variable, or if the omitted variable does not change over time and we can utilize a fixed effects panel estimation approach, which we consider further in section 6.5. In the case of our variable, parental education, some the authors (e.g. Baez-Montengro et al., 2011) argue that there are likely to be significant changes over time in the level of parental education. However, we argue that such changes are unlikely to be significant given the short time span of this current intervention. In the Cambodia study, Marshall (2004) does not provide a control for parental education due to data unavailability. In that study the only data concerning parents is their involvement with the school using a variable: if parental associations are in place in the respective schools. However, in that study this is used as one of the controls for school characteristics rather than as a proxy for a parental education effect.

There is also the possible problem of errors in the data, some of which may be random but others may be non-random. Complications in the data collection process which are discussed in detail in section 5.4 may have opened up the possibility of random and non-random measurement errors. Random errors are possible when schools report the data and when data files are compiled into a single master file. In Kosovo, for instance, there is predominant use of manual entering of the data by the school and municipal authorities which is undertaken more than once at different levels. A more reliable system would reduce possible administrative errors in data gathering processes. The Cambodian research (Marshall, 2004), discussed in section 3.6.2, provides an example of a possible administrative error that may have occurred in the research and also miscalculations during reporting. An example of the latter is miscalculation of the data by a percentage that leads to incorrect rates in terms of units, but comparisons between schools may still have some validity because their relative position is unchanged.

Non-random measurement errors are more problematic for this kind of research. In the initial design we included primary and secondary schools in the research and came to a conclusion

that non-random measurement errors were evident in the primary and lower secondary school data sets. In order to decrease the possibility of the data error we have compared different data sources in the cases where the data appeared unusual. As such, part of the data analysis process was collecting data from various sources and then a comparison was made with aggregated municipal EMIS data. The primary schools appeared to under-report figures on student attendance to the municipal authorities due to different levels of pressure and incentives present in the educational settings. Teachers may be pressured by school directors when reporting the data, and the school directors themselves are pressured because low student attendance figures would be directly linked with a 'bad school' branding and finally the Ministry of Education itself oversees the overall process and demands explanation from schools with high absenteeism rates through its education inspectorates, a problem which is discussed further in section 5.4. The Cambodian research also expressed concern about the possible presence of non-random errors but could not find evidence to validate a problem, as a result it only focused on the random measurement errors as discussed above (Campbell, 2004).

Endogeneity can also be the consequence of a simultaneous relationship between the dependent variable and an explanatory variable. Simultaneity arises when one or more of the explanatory variables are jointly determined with the dependent variable, through an equilibrium mechanism. In this research, student attendance and student performance may be affected by simultaneity. The relationship between such variables is likely to be circular, as high achieving pupils are more likely to attend school and higher attendance will contribute to higher achievement (NAO, 2005). However, in our research past performance may affect current attendance but current attendance can only affect current, not past, performance and thus the use of lagged relationships may to some extent diminish such endogeneity problems. Campbell (2004) suggests dropping the attainment variable from the dropout model because of the simultaneous relationship between dropout and attainment. However, the dropping of the attainment variable only raises the additional problem of endogeneity because of an omitted variable. Apart from using lagged relationships, another possible way to decrease endogeneity is using instrumental variables which will be discussed further in section 5.3.

(2) Another important problem faced in the educational research settings, especially for the type of programme where funding is given to schools, is **selection bias** (which gives rise to endogeneity). The question here is concerned with how certain schools managed to become part of the programme and why others were denied such funding. Marshall (2004) identifies a pattern where the best schools are chosen and because they would be performing relatively well regardless of the programme's impact then this leads to biased outcomes. In our research, the grants were allocated based on well-established criteria, discussed in detail in section 4.4.3, the two main criteria being the extent of poverty and the presence of ethnic minorities amongst the school's student body. Thus, it is important to control for these criteria in any outcome evaluation. The programme was aiming for schools that fulfilled certain criteria; all schools that fitted into the prescribed category were eligible. Additional help was given to schools in order to successfully implement the application process and hence avoid selection based on the management capacities. Thus, bias arising from the inclusion of specific eligible schools in the programme is not considered likely in this study.

(3) The validity of the analysis may also be affected by **missing data**, which is a very common problem in current educational research. Peugh and Enders (2004) investigated missing data reporting in 23 applied education research journals and found that the number of the studies that discuss missing data from year 1999 to 2004 had doubled. However, the application of missing data techniques is still not widespread. Rubin (1976) outlined a theoretical framework, which defines three missing data mechanisms: missing data at completely random (MCAR), missing data at random (MAR), and missing data at non-random (MNAR). Missing data at completely random is when the missing values of a certain variable are not related to the underlying values or other variables in the dataset. Missing data at random is when missing can be related to other measured variables, but is unrelated to that certain variable. Data missing non-randomly is when the probability of missing values of a variable is related to the underlying values of that variable. The existence of missing data at random or completely at random can lead to reduced efficiency, of particular concern when the sample is small; missing data at non-random may affect validity and produce biased results. The most common technique used in the case of missing data at random, which can produce acceptable results, is data imputation, unless the proportion missing is small when

case-wise deletion is acceptable. If the data is missing non-randomly sample selection procedures are required in estimation.

For the purpose of this research, an example of missing data at random would be if the degree of missing data on dropout and attendance patterns is different for different student characteristics, such as family economic status, although unrelated to the values taken by dropout/attendance variables themselves. For example, if we divide students based on their economic status, in our case if are they are part of a Social Assistance Scheme or not, we may realise that attendance data are missing more frequently for the students with low economic status. In this case including the economic status as an independent variable lessens the problem.

Given the problems with missing data, and the difficulties in practice in determining whether the missing data is MCAR, MAR or MNAR the author succeeded in collecting a complete set of school data, even though some of the schools initially did not provide us with their full set. This took considerable effort (see section 5.4 for details), but given the importance of the problem of missing data and the relatively small size of our sample, it was felt to be crucial for the validity of this evaluation to undertake this work.

### **5.3 Method used in this evaluation of the EPIP II programme**

The absence of research that utilizes econometric methods in educational settings in Kosovo increases the importance of the present research in this area. The lack of similar research in the other Balkan countries on impact policy evaluations necessitates learning from similar research in other developing countries.

As discussed in section 4.5, in the current research there are two major approaches to evaluating policy initiatives: quantitative and qualitative. The quantitative approach is appropriate to measure the impact of numerical policy targets. In this research, we use such an approach. The EPIP programme design in Kosovo did not entail a baseline study at the beginning of the programme and although there were some data available before the start of the policy initiative, this was not sufficient for a before and after analysis. Concerning



evaluation policy initiatives, we identified in section 4.5 the two most common used methods as experimental and non-experimental approaches. The experimental approach is known as the ‘gold standard’ for evaluations as it is one of the most comprehensive methods, but it relies on randomization in participation, which is rarely possible in practice. As noted above, the schools that were part of the Education Participation Improvement Project were eligible based on established criteria and procedures and as such, this study automatically falls under the quasi experimental approach.

The Cambodian programme, discussed in section 3.6.2, did not have established criteria for eligibility, however it focused its funding in central Cambodia due to the socio-economic status of those provinces, which makes that study also a typical non-experimental evaluation. The Cambodian research design involved working with primary and secondary schools. Marshall (2004) noted that this was the case because of the low and erratic attendance rates in Cambodia, which resulted in children in primary schools classrooms varying from 6 to 18 years of age. The quasi-experimental quantitative method typically uses two techniques: before and after treatment, and with and without treatment. The Cambodian study did not have data for a suitable comparison group of schools that had never participated in EQIP since all the schools entered the programme in the three provinces where it was located. Consequently, it utilized a time dimension to make comparisons between schools: schools entered at different times within and between provinces, which allowed examining trends over time. The difficulty with this research design was isolating the impact on the intervention on schools that entered from year one compared to other schools that entered in the following years.

For Kosovo, we will utilize a data set that includes a group of schools which has been targeted by the intervention with a comparison group which has not been targeted by the intervention, but also includes data for a pre-intervention period for both groups. One of the major advantages of the present Kosovo study over the Cambodian study is the availability of data for a comparison group: the inclusion of a group of schools that were similar to the participating schools in characteristics such as: school size, pupil/teacher ratio, urban/rural, gender proportions and municipality size, except for the specific inclusion criteria (and these

variables will be included in the regression analysis). However, a disadvantage compared to the Cambodian study is that the programme in Kosovo operated with a smaller number of schools, which resulted in a smaller sample. The sample is discussed in much detail in section 5.4 and the final sample consisted of all the upper-secondary schools that were part of the EPIP II, which automatically became part of the research, along with a comparison group.

As we have already discussed in section 2.6, one of the key issues with the quasi experimental approach is determining the counterfactual of the intervention. The counterfactual deals with questions of what would have happened if the intervention had not happened and tries to establish what changes would occur anyway, regardless of the programme's intervention. From the policy evaluation standpoint we are interested in the impact the policy intervention produces and we do that by comparison of the actual and counterfactual outcomes; however as was noted in the previous chapter, the counterfactual itself cannot be observed. Recent research emphasises the argument that establishing the counterfactual will allow defining, isolating and estimating the treatment effect (Wooldridge, 2001).

In this study we are using regression analysis as the main approach. In order to try to isolate the treatment effect we identify in section 5.4 as many observable variables as possible that may affect the outcomes between the treatment and comparison group of schools as controls. These include importantly the socio-economic and ethnicity variables that were determinants of selection into the programme. It should be noted that although we had no schools in the comparison group that met the specific criteria for inclusion in the programme on these variables, the comparison group had a spectrum of values of these variables, with some close to the values in schools in the treatment group. In the case of the Cambodian study, regression analysis was also utilized to establish a causal relationship. The justification given behind using multivariate analysis was two-fold in the Cambodian study and this also applies here: it allows a causal elaboration on how EQIP affects a student's outcomes and it includes as many variables as possible and by keeping them constant the impact of the variable of interest can be isolated.

#### **5.4 Research design and data limitations**

The EPIP II programme was implemented in 90 primary, lower secondary and upper-secondary schools in Kosovo. Overall 76 primary and lower secondary schools and 14 upper-secondary schools took part in the project, which was 10% of the all primary schools (760 primary schools) and 20% of the upper-secondary schools (70 upper-secondary schools) in Kosovo. An initial sample of 30 schools was randomly chosen from among the 90 schools that took part in the EPIP II Project. The rationale behind the selection of only 30 schools was because there is no proper functioning of an Education Management Information System in Kosovo (EMIS) that would allow end users access education data for research purposes. The current EMIS is installed only in one-third of the schools in Kosovo and there is a lack of proper software, hardware, maintenance and the continuous evolvement of the technology has resulted in unsuccessful attempts to update and extend the system. The existing EMIS system gives only aggregate data at the municipality level for school pupils, even though there is a continuing obligation to collect individual school data for the municipal directorates. Given this, it was clear that to obtain data on individual schools would require contacting the schools themselves which was also attempted, for a limited number of schools, in the original World Bank evaluation as discussed in Section 3.6.2. It was expected that this would need a considerable investment of time in order to collect data for every school, as it was likely to require school visits as well as electronic contact in order to get the data for each of the four years of the project. This would apply to the non-treatment schools as well as the treatment schools. As a result it was decided that collection of a bigger sample would require much more time and resources than were available. Even though a larger sample would have been preferable, we re-emphasise that this kind of educational research is new for Kosovo and as such will lead to recommendations for data collection in the future.

A comparison group of 30 schools was randomly selected to match the characteristics of the treatment sample in terms of school size, pupil/teacher ratio, urban/rural, gender proportions and municipality size. All schools from the treatment group had followed the same rules of procedure to develop interventions aiming to improve attendance, reduce dropout and improve attainment. On the other hand, schools from the comparison group were not subject to the treatment by EPIP II. However, it should be noted that the Government of Kosovo and

other relevant stakeholders had been addressing similar school improvement objectives during the previous five years, e.g. through provision of free textbooks for pupils and other interventions such as awareness raising campaigns and the improvement of school infrastructure. The existence of these other initiatives makes it more difficult to isolate the effect of EPIP II while holding other variables constant, but this is taken account of by the inclusion of the control group.

The EPIP II Project had its own class cohort-based data collection system, independent of the MEST-administered EMIS. The data from all schools having participated in the two year EPIP II was collected over two academic years, 2006/2007 and 2007/2008, including student demographics, data on absenteeism, number of classes, dropout and transition of students from one grade to another. However, an initial analysis indicated significant problems with this data. Absenteeism appeared to be under-reported, particularly at the primary level (grades 1-5) although it was only slightly less of a problem at the lower secondary level (grades 6-9). A justified absence in Kosovo is defined as an absence when permission for absence was granted by the school for unforeseeable circumstances such as illness, force majeure etc. In most cases students are requested to produce proof like medical reports, notes from parent, etc.; or parents are required to contact class teachers directly and justify the absence. If none of these measures is taken then the absence of the student is registered as unjustified. The initial analysis of the data from primary and lower secondary schools in the initial sample suggested that the average absence rate (number of absences divided by total number of classes) in treatment schools in the academic year 2007/08 was just 2.2%, and in the comparison group schools only 1.7%. We have reported only the average absence rate in total since both absences, justified and unjustified, are of importance for our research. No matter whether the absence is justified or unjustified the pupil missing a class would lose the value-added from the lessons that are given that day. This is in accordance with practice elsewhere, for example in the UK a National Audit Office report on attendance states that the total number of absences is more reliable because it is not affected by the decision of the school whether to authorize the absence (NAO, 2005). After calculating the absence rates the data suggest that these appear to be much lower than expected for Kosovo. The existing literature suggest that the absence rates for developing countries can be up to 10% or higher

(UNICEF, 2009) whereas for developed countries they are typically up to 6%, (which is found to be the case in the UK).

The absence rates in Kosovo are likely to be relatively high by European standards bearing in mind that it is one of the poorest countries in Europe. Most of Kosovo's population lives in small towns outside of the capital city and near subsistence farming is common, involving about 30% of the labour force and as a result many youngsters are obliged to join the farm labour force instead of going to school. We identified problems associated with this in the field visits. The schools in the Prizren region e.g., which has a largely agriculture-based economy, reported that many pupils move to summer houses during the key growing season and as a result misses school lessons. In most of these cases schools, acknowledging the high poverty levels in the countryside, either record a justified absence or do not register the absence at all. Thus schools are under-reporting absences for such groups. Similar patterns of under-reporting were observed when screening the data at national level collected by the EMIS. Table 5.1 below provides an overview of absenteeism trends in the academic year 2007/08.

**Table 5.1 Project data and national data on absenteeism in the academic year 2007/08**

	No of students	Absences Justified	Absences Unjustified	Total Absences	Total Number of Lessons	Shifts	Justified Absence Rate	Unjustified Absence Rate	Total Absence Rate
<b>EPIP II data for the Academic Year 2007/08</b>									
Treatment Group Schools	16,824	133,558	85,101	218,659	528,428	2	1.35	0.86	2.21
Comparison Group Schools	15,308	94,518	62,354	156,872	482,116	2	1.05	0.69	1.74
<b>Total</b>	<b>32,132</b>	<b>228,076</b>	<b>147,455</b>	<b>375,531</b>	<b>1,010,544</b>				
<b>Education Management Information System Data for Academic Year 2007/08</b>									
Primary schools (grades 1-5)	174,492	692,756	317,100	1,009,856	7,162,897	2	0.88	0.40	1.28

Lower secondary (grades 6-9)	149,390	1,283,310	821,652	2,104,882	4,917,583	2	1.34	0.61	1.95
<b>Total</b>	<b>323,882</b>	<b>1,976,066</b>	<b>1,138,752</b>	<b>3,114,738</b>	<b>12,080,480</b>				

Inconsistencies were also observed in the apparent over-reporting of the number of classes and misreporting of the dropout data. (The research in Cambodia also raised this concern of over-reporting for the promotion rates but no such claims could be confirmed.) In order to identify the causes we undertook a series of field visits, which enabled interviews with policy makers, school managers, teachers and other relevant stakeholders. Ten field visits took place in three regions of Kosovo: Prishtina, Mitrovica and Prizren which cover the whole area that the programme was implemented in. The visits were conducted jointly with other projects that are conducted throughout schools in order to get as much feedback as possible from the schools. A set of questions were asked in each school using a semi-structured questionnaire with a few open-ended questions in order to foster an active dialogue on the issues of interest. The feedback was recorded in the form of notes instead of recording transcripts in order to get a more constructive response from the respondents as it was believed that respondents would be more open and less defensive. Even though there was a set of questions which were asked the discussion was quite spontaneous and started with concerns that schools may have in general. In most of the cases education stakeholders mentioned dropout and attendance rates as concerns for their schools which was followed by additional questions from the author such as why there such concerns were not reflected in the school's reported data. All these education stakeholders contacted discussed openly the difficulties with dropout and attendance data. We have summarized the following points that commonly repeated in the interviews:

1. Absenteeism is largely tolerated by teachers in primary and lower secondary level (grades 1-9), particularly when it is due to student tardiness in attending classes or to justified absences. Teachers would only occasionally record absenteeism if they do not have a clear indication that the absence is excused by parent or they are uncertain of the reasons for the absence. Class teachers submit aggregated reports on absences each

semester and their effectiveness tends to be judged by school management on the basis of the number of unjustified absences in their class.

2. Absenteeism in upper secondary schools is more accurately and consistently recorded and reported, particularly in vocational schools. This seems to be due to the fear that absent students may engage in wrongdoings that are more typical for some of that age group. On the other hand, according to existing legislation (Regulation, 04/L-032 upper secondary schools are allowed to take disciplinary action against students with a high number of unjustified absences, including suspension from regular attendance and requiring additional ways to meet graduation requirements. Even though such legislation is in place, the government has declared improving education participation rates as one of its priorities (UNICEF, 2010) and as a result forbids pupil withdrawal.
3. The number of classes held is, in general, over-reported, thus painting an inaccurate picture of attendance rates. This happens because on a regular basis classes are shortened or cancelled due to weather conditions or other reasons beyond the control of school, but these classes are still reported as being held.
4. The data on dropout in Kosovo schools are, in general, problematic. A study undertaken by Riinvest (2009) found that there was no clear and consistent definition of what a dropout is amongst the schools or at the central level, and this has led to the misreporting in national statistics. This latter study provides numerous examples of those who migrated out of the country or moved from one school to another yet were reported as dropout in schools, whereas in other schools those who dropped out were deemed as truants and were formally enrolled in the same class next year. Being aware of that problem, EPIP II collected data from targeted schools by providing additional explanations to school management regarding definitions of drop-outs and we followed the same approach in the case of comparison group schools. A general trend in compulsory schooling (grades 1-9) is that truants are treated as repeating students and formally enrolled in the same grade in the next academic year. This seems to be the response of school managers and local education authorities to the inability of the social welfare and justice systems to deal with such offences.

5. In upper secondary education, which is not compulsory in Kosovo, the drop-out problem is more common and most of the students falling into this category are treated as students not being graded (ungraded students). The latter are students that have not attended one third of their classes for various reasons: joining the labour force, convictions etc. In contrast to the practice in primary and lower secondary schools, students here are not enrolled automatically in the next academic year unless they take the end-of-the-year exams organized for that category of students.

Following the attendance and dropout data problems discussed above we choose to continue our evaluation with only with the upper-secondary schools, thus limiting our investigation to schools that have, in general, more reliable data. This we redesigned our target population focusing on all 14 upper secondary schools that participated in the EPIP II project and identified a new comparison group of 14 schools that showed a similar spread to the treatment schools in terms of multiple characteristics: school type (grammar school or vocational school), school size, pupil/teacher ratio, urban/rural, gender proportions and municipality size. The full list of treatment schools and comparison group schools is given in the Appendix A5.1. This led to a smaller sample than was originally intended but we have to note that also our population is smaller, as we have mentioned above there are only 70 upper-secondary schools in total in Kosovo and 14 of those schools participated in EPIP II.

As previously discussed, data reliability affected our research from the very start of the analysis. Since the EPIP II programme had an established programme team, one option was to collect the data from the implementation team. However, when the programme ran its course there were no established structures and funding that would enable follow-up data collection, which meant that this data was not available for the final two years of the project. Thus, this study used the data collected for the EPIP II programme for the two years it was available, but the author collected data from the EPIP II schools for the final two years of the programme and for the control group for all years. Such a complex system of data collection led to considerable time and resources being devoted to data collection and data cleaning during this study, including field visits to schools in order to secure the data for all the years. Schools were contacted both directly and through the municipal education directorates and provided with forms specifically for this research which were designed by the EPIP



programme team, to be found in Appendix A5.2, and were given the time to provide the requested data. The first contacts with schools and municipal education directorates were through email and telephone. Schools were sent an electronic excel form which contained the various fields of data required from them. Schools were given sufficient time to provide the data and if no response was received after one month, the schools were re-contacted to make sure that they were still in the process of gathering the data required. Numerous schools appeared to face difficulties in providing this data and there were many cases where schools were contacted more than twice before they provided the data in the required form. When the schools had been contacted three/four times but had still not returned the form, then education stakeholders that could apply pressure to speed up the process were contacted, such as the Department for Pre-university Education within the Ministry, and the schools were visited, establishing direct face-to-face contact with the school management. Even when the schools returned the forms in some cases their data were not complete for all the academic years. In these cases schools were re-contacted and the focus and persuasion was on getting the data for the specific missing year. At least half of the schools were visited directly in order to make sure that the data was collected as required and the whole process took a considerable investment of time by the author.

Before introducing our model specification, we also express concerns that the lack of effectiveness of municipal school funding may have affected our research.

**Municipal school funding** – The funding of the schools in Kosovo is through the Education Specific grant, which is an open ended grant with no upper limit. As previously explained in the section 1.2.8 the grant is allocated to the municipalities according to the national state formula, which is distributed based on per capita grants. As a result, schools report to the municipalities the actual number of the students as the Education Management Information System is not fully functional and municipalities prepare a budget for the Ministry of the Finance according to those figures on an annual basis. As the funding allocated is strictly dependent on the number of students per school, it is in the municipalities' interest to report more schoolchildren to secure extra funding. This tendency has been reported by the Ministry of Finance in Kosovo (MFK) (2011), which released a set of recommendations for schools and municipalities on the funding system, which clearly states that there is a need for more

transparency and credibility in the education statistics provided by schools. The current lack of such transparency and credibility has left the municipal funding open to other deficiencies such as political influence from the political party currently in power. Political affiliation in different levels of governance may have affected the data used in this evaluation, even though there is no direct evidence of this.

This research managed to secure student characteristics data at the class-based level, teacher characteristics data aggregated at the municipality level and school management characteristics data at the school level. Student characteristics data was gathered through various sources: municipal education directorates' data files, school files and programme implementation files. The student characteristics available per class are: gender, ethnicity and socio-economic status, student absences, repeating students, ungraded students (that is students not receiving an end of year grade) and student achievement by GPA. For the socio-economic data we use the percentage of the students whose households are registered under the Social Assistance Scheme Programme in Kosovo. The Social Assistance Scheme programme has been administered since 2000 by the Centre for Social Work which allocates cash to families that are registered under this Scheme and fall into one of two categories. Under category 1 the following groups are included: people over 65 of age, under 18 and dependent, 18-65 unable to work due to disability, single parents and full-time carers of a disabled person within the family. Category 2 extends to the unemployed citizens; however there are additional criteria and this category is much more restricted in order to avoid large government financial outflows.

The data on student absences consist of data on two types of absences: justified absences and unjustified absences. The numbers of repeating students are those who have at least one fail mark at the end of the academic year and fail to obtain a passing mark in class exams taken in June or August. The number of ungraded students is those who, for any reason, justifiable or unjustifiable, have not attended more than 1/3 of classes during the academic year and have not taken the end-of-the-year exams organized for that category of students. The student achievement data consists of information on student grades, including those for repeating students. The student grades available are the result of the evaluation of the teachers and are not standardised within or across schools. However, data from the State Matura Exam for the academic year 2009/10 was collected for all 28 schools. This is the final exam necessary to

obtain a high school diploma and is taken by all grades 12 students in grammar schools and is optional for grade 13 students in vocational schools, though the great majority of them take the test. This final exam test is administered centrally through the Evaluation Office in the Ministry of Education, Science and Technology (MEST). The Ministry is responsible for the whole process of testing from the test preparation to the marking and publishing of the results. However, the data of the State Matura is at student level and the Ministry has not provided us with coding that would identify the school even after several attempts and as a result this set of data could not be utilized.

Teacher and management characteristics data were not available at the school level. The teacher and management characteristics data were adapted from a different data collection initiative of the World Bank related to the implementation of a teacher licensing process. This data was linked to the municipality rather than the school level. As a result such data only provided sufficient information to calculate municipal averages for teacher characteristics. However, management characteristics data was possible to trace to the school level, since only one director is assigned to a school, whereas for teachers this is impossible due to the larger number of teachers teaching in one school.

## **5.5 Conclusion**

This chapter examined previous research problems encountered in the evaluation of policy initiatives, concentrating on the methods used to evaluate dropout, attendance and attainment, and research design considering data limitations. An experimental approach was not possible in this evaluation, as this requires input into the selection procedure, which was outside of the author's control. Instead, a quasi experimental regression approach was considered the most suitable approach. A comparison group, with some similar observable characteristics as the treatment group, was included in the data. This research will utilize regression analysis which has rarely been used before for policy evaluation of this kind of policy initiatives in developing countries. This research is one of the first attempts to conduct an impact evaluation on quantitative outcomes of an education project in a developing/transition country such as Kosovo.

Problems relating to research design of an evaluation, which impact on validity, data reliability, and availability, are quite challenging in the context of developing countries. This was the case in this research, which led to a revised specification (and reduction) in the sample and considerable time and effort spent on data collection and cleaning. However, the extensive field research, the field visits and interviews, did provide a data set that included both participant and non-participant schools that has enabled the conduct of an impact evaluation that at least starts to address the many issues neglected in previous evaluations. In the following chapters, estimations of the impact of the school development grants on educational outputs are derived using regression analysis, starting with student dropout in chapter 6.

## CHAPTER 6 ESTIMATION OF THE IMPACT OF SCHOOL DEVELOPMENT GRANTS ON STUDENT DROPOUT IN KOSOVO

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## **6.1 Introduction**

After discussion of the previous research on dropout, attendance and attainment and problems in evaluating policy initiatives aimed at targeting these outcomes in Kosovo in chapter 5, the concern in this and the following chapter is with estimation of the impact of the school development grants, allocated under EPIP, on student dropout, attendance and attainment. We start in this chapter by considering dropout. In section 6.2 the preferred model and variables are specified and section 6.3 proceeds with the estimation using cross section analysis. In section 6.4 fixed effects estimation is utilized and finally the discussion of the results is concluded in section 6.5.

## **6.2 Specification of the dropout model**

We start our model specification by stating the initial key hypothesis, which is that targeted assistance of the kind provided in the World Bank programme improves school quality, infrastructure and staff development and therefore leads to lower student dropout, higher student attendance and improved student attainment. Reducing dropout was among the World Bank's key measurable indicators (World Bank 2003, p2) given the overall programme objective which was improving educational outcomes for primary and secondary school education. The analysis commences by defining the dropout rate for the purpose of our own research. We calculate the continuation rate as a proxy indicator of the dropout rate. Continuation rates are used due to the incomplete dropout data in Kosovo which do not allow accounting for students that may have re-entered schooling or may have transferred to another school. Despite the requirement that students are obliged to provide a transfer form when moving from school to school, the EMIS data does not adjust for such movements. Given this we had to utilize a proxy measure in assessing the impact of the school development grants on student dropout. Previous studies define the continuation rate as the number of students who complete the grade and enrol at the next level divided by the total number who completed (Marshall, 2004).

Whilst the use of the continuation rate is feasible for the purpose of our research, the choice of this measure brings to attention particular characteristics that are not always accounted for

in similar analyses, such as student mobility and internal migration. The Cambodian study, which serves as the key reference study for this research, faced difficulties in calculating dropout and did not account for either movers or students who re-enter the school system throughout the year. For the purpose of this research we have accounted for student mobility in terms of movements in and out of classes throughout the year by collecting data at the end of the academic year, which should lessen this problem to some extent but not fully solve it. Internal migration is a problematic area for our research, as population movement from rural to urban areas, particularly to the capital city, was a feature in Kosovo in this period. Initial investigation of the descriptive data suggests that the continuation rate for schools in the Prishtina municipality, Kosovo's capital city reached, in some cases, over 100%. Such population movements make it difficult to accurately estimate student continuation to the next level at school level and as a result to measure the impact of EPIP on this rate. This issue is discussed further in considering the specification of the model, when we suggest the inclusion of a dummy variable for schools in Prishtina.

We calculate the continuation rate using a class cohort analysis. The defining of the continuation rate implies re-organization of the data in a manner that facilitates this analysis. Class cohorts are organized separately for each school and class in order to follow continuation to the next level. The continuation rate is calculated by comparing academic year by academic year, starting with 2007/2008. We cannot calculate the continuation rate for the first academic year of the programme, 2006/2007, since we do not have the data for the previous academic year, which is class 9 given that our data is for secondary schools, as it is impossible to track students' mobility from the primary to the secondary education with the current data available. We follow each class cohort and their progression to the next level; that is classes 10-11, 11-12 and 12-13 which are continuation rates into years 2, 3 and 4 of the secondary school. For the year 2006/2007 we have only class cohorts 1, 2, and 3 and their progression through their following school years. For the following years 2007/2008, 2008/2009, 2009/2010 we follow the new cohorts who enter the school in that year as class 10 and progress through the system.

We present a more detailed progression of the class cohorts in the Table 6. 1 below and in the explanation that follows:

**Table 6.1 Class cohort analysis**

Academic Year 2006/07-2009/10				
Year	Class 10	Class 11	Class 12	Class 13
2006/07	10	11	12	
2007/08		11	12	13
2008/09			12	13
2009/10				13
Academic Year 2007/08-2009/10				
Year	Class 10	Class 11	Class 12	Class 13
2007/08	10			
2008/09		11		
2009/10			12	
Academic Year 2008/09-2009/10				
Year	Class 10	Class 11	Class 12	Class 13
2008/09	10			
2009/10		11		

As illustrated in Table 6.1, class cohorts progresses as follows through the academic years to give the following nine observations per school of the continuation rate:

- Class 10 of year 2006/2007 becomes class 11 in academic year 2007/2008, then class 12 in academic year 2008/2009 and finally class 13 in academic year 2009/2010. This gives three observations for this cohort (10-11, 11-12 and 12-13).
- Class 11 of year 2006/2007 becomes class 12 in year 2007/2008 and class 13 in year 2008/2009. This gives two observations for this cohort (11-12 and 12-13).
- Class 12 of year 2006/2007 becomes class 13 in year 2007/2008 which is just one observation (12-13).
- Class 10 of year 2007/2008 becomes class 11 in year 2008/2009 and class 12 of year 2009/2010. This gives two observations for this cohort (10-11 and 11-12).
- Class 10 of year 2008/2009 becomes class 11 in year 2009/10 which is just one observation.



We initially follow the class cohorts 10 and 11 as they progress to the next schooling level and take the 2006/7 class 10 continuation rate to class 11 in 2007/8. The total number of students in class 11 will include repeating students, i.e. those students with a failing mark at the end of the academic year who do not successfully pass to the following class level. In order to get the numbers continuing through from one class level to the next, we subtract the repeats of the 2007/08 from the total number of students in 2007/08. Thus the continuation rate is calculated as the number of students in class in academic year 2007/08 minus repeat students and divided by number of students enrolled in the previous class in academic year 2006/07. We will refer to this as class 10-11 continuation rate:

$$\frac{2007 / 08 \text{ students} - \text{repeat students}}{2006 / 07 \text{ students}} * 100 \quad (6.1)$$

As explained in section 5.4, an academic year can progress through two or three levels but we will consider the 12-13 continuation rate separately from the others where there is a class 13 in the school. Advancement to class 13 is slightly different since this class is not compulsory and not all secondary schools offer this level which leads to some students completing their secondary schooling with 12 years and some taking another year of education. Significantly for estimation, it may be that the independent variables have different effects on continuation at this point, or different factors come into play. Vocational schools have a class 13 whereas gymnasiums have it only for their mathematics stream. As such the first model will include continuation rates which are calculated between years 10-11/11-12 (six observations per school, 168 in total) and we will estimate the continuation between classes 12 -13 separately (three observations per school, 75 in total). In doing this we follow a similar procedure to that used in the Cambodian study, but note there is a problem in pooling the two years 10-11/11-12 because, for instance, a large number of dropout in year 10-11 may be connect to a smaller number of dropout in year 11-12 because those ‘at risk’ have already left. However, as explained below, there are reasons to expect fewer dropout in the later year and this is accounted for in our model.

After defining the dependent variable we next examine the model specification. As shown in section 2.5, human capital theory, not the education production function approach, has usually provided the basis for specifying models of student participation. The human capital model in the context of Kosova suggests that returns to education may vary by gender, ethnicity, urban/rural and school quality (through achievement). In addition capital constraints that may reduce participation are likely to be most strongly felt by the poor and ethnic minorities. Much of the empirical literature reviewed in section 2.7 was largely eclectic, but has stressed similar variables with student characteristics, school and municipality characteristics typically used as explanatory variables in many of the studies that measure the impact of targeted assistance on dropout (for example, Cardoso and Souza, 2004; Glewwe and Olinto, 2004). Apart from treatment there are other conditioning variables that will affect dropout: school, teacher and community characteristics (Campbell, 2004). As such the analysis will utilize data from three levels: class cohort, school and municipality level. For the purpose of our research, poverty and ethnicity are also of central interest as they were the two main criteria for the schools to be eligible for inclusion in the EPIP programme which reflected the wider concern about their influence on schooling outcomes. We initially list the explanatory variables that are used in the estimation of the impact of the school development grants on the continuation rate, providing brief descriptive statistics and indicating the expected signs of coefficients in Table 6.2. Fuller descriptive statistics of the continuation model for all the levels are presented in the Appendix Table A6.1.1.

**Table 6.2 Variable name, level, description and descriptive statistics and expected coefficient sign**

<b>Variable Name</b>	<b>Variable Acronym</b>	<b>Variable Level</b>	<b>Variable Description</b>	<b>Mean/ Proportions</b>	<b>St. Dev.</b>	<b>Expected Sign</b>
<b>Dependent Variable</b>						
Continuation Rate	CrLead	Class cohort level	Continuation rate %	79.16	23.56	
<b>Independent Variables</b>						

Class year (dummy)	_class2	Class cohort level	0 =class 10-11 1 =class 11-12	0.28		+
Females	femalepc	Class cohort level	Females in the class cohort %	45.34	16.22	-
Student socio-economic status	povertyp	Class cohort level	% students whose households are supported under Social Assistance Scheme	3.14	2.75	-
Ethnicity	ethnicg	Class cohort level	% who are not Albanian	5.16	3.49	-
Student attainment	AttEVG	Class cohort level	% of students with excellent and very good performance	43.37	17.57	+
EPIP School (Dummy)	ecdummy	School level	1= EPIP school, 0 = if not	.5		-
Treatment (dummy)	EPIP Active	School level	1= EPIP in operation in EPIP school, 0 = if not	.25		+
Prishtina schools (dummy)	prdummy	School level	1 = Prishtina, 0 = other	.21		+
School Director's Years of Experience	myofex	School level	School Director's years of experience in 2007	26.98	7.59	+
Urban/Rural (dummy)	urbrur_1	Municipality level	1 if urban, 0= if rural	.60		+
Teacher's Education	TeUHPS	Municipality level	% of teachers who graduated from university or high pedagogical school	92.44	4.29	+
Teachers' Years of Experience	extavg	Municipality level	Teachers' average years of experience in 2007	14.86	1.79	+

The data available for the purpose of our research are at three levels: (1) class cohort level which is the data on student characteristics; (2) school level which is the data on management capacities; and (3) municipality level data which is the data on school staff capacities. The

data for the independent variables is used from the class 10 for the continuation rate 10-11, class 11 for the continuation rate 11-12 and from the class 12 for the continuation rate 12-13. It is the class they are coming from that is seen as affecting the continuation rate rather than the class they are going to.

### **(1) Class cohort level**

**Continuation rate** (Crlead) - as defined previously in this section. After calculation of the dependent variable we examined the descriptive statistics and noted that there is one observation that is a large outlier in the data with a continuation rate of 285% (this variable has a mean 79% of and a standard deviation of 24%). We identified the school and the region for this specific observation and investigated if there were any particular circumstances that may have impacted on this observation. The school is based in a predominantly agricultural region of Prizren, which is also the second largest city in Kosovo, and as a result many children regularly move to their summer house to do agricultural work for their families as mentioned in section 5.2. However, it is likely that this value for the continuation rate of this one observation is not related to any particular characteristics but is simply miss-reported. As such we decided to exclude this observation before conducting the regression analysis. We also noted a number of continuation rates for other schools above 100% and these are discussed further below in relation to the inclusion of a Prishtina dummy.

**Class** (class2) – is expressed as a binary variable, 0 if it is class continuation rate 10-11 and 1 if class continuation rate 11-12. This variable is to capture possible differences in continuation rates between classes of different levels. In the Kosovar context, the expectation is that students, having reached the final years of secondary education, tend to continue to the next level so that they receive a diploma for completion. As a result we expect higher continuation rates from classes 11-12 compared to that for classes 10-11.

**Females** (femalepc) - As discussed in section 2. 7.1, previous research has suggested that in developing countries the likelihood of girls continuing to the next school level is relatively lower than that for boys (Sackey, 2007). This is in line with human capital theory if females get a lower return to education in the labour market (section 2.3 and 2.5). As a result we expect that the continuation rates will be lower for females. The variable is constructed as the percentage of females in the class cohort.

**Student socio-economic status** (povertyp) –As discussed in section 2.4, one of the determinants of the decision to send children to work rather than school is likely to be the incidence of poverty (Basu, 1999). Previous research finds that poverty negatively affects continuation rates, identifying it as one of the main barriers to completing post-secondary education. Due to a lack of data we will use a proxy for the incidence of poverty which in this research is defined as the percentage of the students in the class cohort from households receiving support under the Social Assistance Schemes. Studies in developed countries frequently use another proxy for the poverty level which is meal vouchers, which has its own problems as a proxy (Hobbs and Vignoles, 2007), but since meal vouchers are not common in developing countries we cannot utilize them. The Social Assistance Scheme registers all households that receive such benefits and to our understanding there are few non-claimants who are eligible for the assistance. The similar research conducted in Cambodia uses the percentage of the households in the municipality that live below the poverty line (Campbell, 2004).

**Ethnicity** (ethnicg) - is expressed as the percentage of students of minority ethnic groups in each class cohort. The minority group include those from the Roma, Ashkalia and Egyptian community. The Serbian minority is not included in this research as they have a parallel system of schooling and did not participate in this Programme. According to research appraised in section 2.4, disadvantaged groups such as minorities are less likely to continue to the next level. The hypothesis is that schools with higher proportions of ethnic minority groups have higher rates of dropout and lower continuation rates.

**Attainment** (AttEVG) - is a measure of student achievement in each class cohort as evaluated by their teachers internally, based on their performance throughout the year. As we have discussed in chapter 1, there are five levels of performance students can achieve and are graded from grade 1 to grade 5: fail (1) satisfactory, (2) good, (3) very good, (4) and excellent (5). For the purpose of this estimation the attainment variable is expressed as the percentage in the class with an attainment of excellent or very good. The expected sign of the coefficient for the attainment variable is positive. Due to concerns of a possible endogenous relationship between continuation to the next schooling level and attainment, the Cambodia study (2004) did not use attainment in the promotion model (which is similar to our continuation rate except that additional data on repeating students is utilized in our own

variable), even though there were indications in that study that better continuation was associated with better attainment. The author admits that the Cambodian study did not establish such an endogenous relationship empirically but notes that it is worth mentioning since there is lack of endogeneity discussion in this type of policy research. That study also fails to provide references to any research that may have led to the decision taken not to use an attainment variable in their model.

Non-inclusion of a relevant variable may also lead to endogeneity (omitted variable) problems. We argue that the case for the view that continuation to the next schooling level effects attainment during the previous school year is weak. There is the possibility that some students who are in danger of failing and thus in danger of having to repeat may work harder (and hence get better attainment) because they want to continue, but we would not expect this to be a strong effect. As discussed in section 5.2, if endogeneity is present instrumental variable estimation is appropriate but, as was the case in the Cambodian study, due to the lack of data we are unable to use this approach. Unlike that study we take the view that endogeneity from a missing variable, if we exclude attainment, is far more problematic than the possibility of endogeneity arising from simultaneity. Thus in our research we will estimate a model with the attainment variable in our preferred model and present a model without attainment only for purposes of comparison with the Cambodian study.

## **(2) School level**

**An EPIP school** (ecdummy) - This variable is a binary variable, 1 if an EPIP school and 0 if not an EPIP school. This variable only distinguishes EPIP schools from non EPIP schools and does not account for the period of participation in the treatment itself: it remains the same throughout the data period and does not change when the treatment begins. The EPIP project was not based on a randomised trial and inclusion of such variable allows controlling for the differences between the treatment and comparison group that is independent of the actual operation of the programme. This is additional to the poverty and ethnicity variables that are also included as controls (and particular levels of which were the basis for inclusion in the EPIP programme). As noted above the poverty and ethnicity variables are continuous variables, which vary between class cohorts of EPIP schools as well as between class cohorts

in EPIP and the comparator schools. Including the EPIP school dummy variable is a control for any characteristics that distinguish the EPIP schools from the comparator group of schools that are not explicitly modelled. The sign of the coefficient on this variable is expected to be negative as the schools that became part of the programme were chosen because they were viewed as having a disadvantaged intake of pupils.

**Treatment dummy (EPIPActive)** -This variable is a binary variable of 1 if EPIP is in operation in an EPIP school and 0 if EPIP is not in operation or if the school is a non-EPIP schools. This variable will capture any EPIP effects in EPIP schools when the actual treatment is implemented. The hypothesis is that schools where EPIP is in operation will perform better and therefore have improved continuation rates compared to the schools where EPIP is not in operation.

**Prishtina schools dummy (prdummy)** - is a binary variable of 1 if the school is in Prishtina and 0 otherwise. As noted above, there were a number of schools in our sample with continuation rates above 100%. Our data has six schools from Prishtina that have a continuation rate of over 100% (up to 115%). Poverty and high unemployment rates in post conflict countries such as Kosovo typically lead to high internal migration rates between municipalities. According to the World Bank (2007) in the capital, Prishtina, the share of the population born outside the municipality is 17%. However, there is no data available on the size of the inflows of school-age children or their outflows which would allow adjusting the continuation rate. This internal migration is likely to have had a large impact on the continuation rates especially in the capital city, having in mind that about 45% of the Kosovar population are under 18 years old. Thus a dummy for schools in Prishtina has been added to take account of the possible effect of this inward internal migration on continuation rates. We also note that there is one more observation which has a continuation rate of 120%, a school from Drenas, a city close to Prishtina. We discuss further this observation when we conduct our specification search.

**School director's years of experience (myofex)** - is the actual number of the school director's years of experience in school management. The school director's year of experience is a proxy for the school's management capacity. The hypothesis is that better school management capacities will improve the overall performance of the school, holding other things equal, and as a result student continuation rates will be higher.

### **(3) Municipality level**

**Urban/Rural** (urbrur\_1) – is expressed as a binary variable, 1 a school is in an urban area and 0 if not. This variable is at the municipality level and identifies whether the municipality where the school is based is predominantly an urban or rural area. The hypothesis is that students in urban areas are more likely to continue to the next year of schooling because the more educated entrants to the labour market face relatively better employment prospects than those in rural areas, the latter also have a higher incidence of agricultural employment. This variable is also expected to capture some of the effect on continuation rates from the movement of population toward urban areas that has occurred, as argued above, in Kosovo. As such we expect that the continuation rates in the cities may appear higher than those in the rural areas.

**Teacher education** (TeUHPS) - Tracing the teachers to their class cohort level is not possible because teachers in secondary schools teach more than one class. Moreover, no data was available at the school level for teacher characteristics and thus we use an average at the municipality level of the percentage of teachers who graduated from university and High Pedagogical Schools<sup>4</sup>. The hypothesis is that the schools who have higher averages of teachers with university and pedagogical school will have more interesting and interactive classes which lead to better continuation rates.

**Teacher years of experience** (extavg) - is expressed as an average of the teachers' years of experience per municipality. We also had access to average teachers age per municipality, however we do not use this variable as teachers' years of experience seemed more relevant for this research. By using teacher years of experience we are tracking the years that the teachers have spent in teaching which may be a better indicator of the quality of the class environment for students. Research suggests that students learn more from teachers with more experience than they do from less experienced teachers (NCES, 2000d). As such our hypothesis is that the teachers with more years of experience will impact our continuation rates for the better.

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<sup>4</sup> High Pedagogical Schools are equivalent to Foundation Degrees but with specific concentration on pedagogy.



After defining and examining the dependent and explanatory variables for our model we start by introducing Campbell's (2004) linear equation which is specified as follows:

$$Y = \alpha + \beta_X' \mathbf{X} + \beta_S' \mathbf{S} + \beta_{EQIP} EQIP + v \quad (6.2)$$

The dependent variable in the Cambodia study is the promotion rate (Y), which is similar to our continuation rate except that additional data on repeating students is utilized in our own variable, as explained above. The promotion rate is modelled as a function of a constant term ( $\alpha$ ), a vector of coefficients multiplied by student and family characteristics ( $\mathbf{X}$ ), a vector of coefficients multiplied by school and teacher characteristics ( $\mathbf{S}$ ) and a single coefficient which measures the treatment effect (EQIP). Our model will expand on this by adding additional teacher and management characteristics and is specified as below:

$$Crlead = \alpha_0 + \alpha_1 \text{class2} + \alpha_2 \text{femalepc} + \alpha_3 \text{povertyp} + \alpha_4 \text{ethnicg} + \alpha_5 \text{AttEVG} + \alpha_6 \text{ecdummy} + \alpha_7 \text{EPIPActive} + \alpha_8 \text{prdummy} + \alpha_9 \text{myofex} + \alpha_{10} \text{urbrur\_1} + \alpha_{11} \text{TeUHPS} + \alpha_{12} \text{extavg} + v \quad (6.3)$$

### 6.3 Estimation of the continuation model

In this section we start by outlining the specification search for an appropriate model and continue with interpreting the preferred estimation on the impact of participation in EPIP on class 10-11/11-12 continuation rates. As explained above, a separate analysis is conducted for the class 12-13 continuation rate from the earlier secondary school levels. We argued in section 5.4 that the most appropriate method for estimation of the impact of the EPIP programme for this research is regression analysis. Similar educational research has also mainly focused on using regression analysis (Marshall, 2004, Skoufias and Shapiro 2006). The Cambodia study's (2004) initial model was a linear functional form of a regression model, though its second equation included a quadratic term of time in order to capture the time effect of the intervention, because of the lack of a control group. That research did not have data on suitable schools that had never participated in EQIP as a control group and as a result made comparisons on the basis of the different years that schools entered the programme. In our estimation it is not necessary to do this since data is available for schools

that did not participate in this Programme. However, a measure of the duration of participation in EPIP is included in order to assess possible differential impacts depending on whether the class spent more than one year in the Programme. The initial results suggested that there was no significant duration effect, as a result this variable was removed for parsimony in our final model. Additionally, as noted in section 6.2, when discussing possible endogeneity between the continuation rate and attainment we will present estimates with attainment as our main model and without attainment for comparison with the Cambodian study. This section has two sub-sections: 6.3.1 which explains the specification search and results for the continuation rate for the class 10-11/11-12 and section 6.3.2 which is the specification search and results for the continuation rate for the class 12-13 only.

### **6.3.1 Specification search, results of the continuation model for the class 10-11/11-12**

After discussion of the model specification we continue with our specification search, and results of our regression analysis. Before interpreting the estimations from the linear regression for the classes 10-11/11-12 continuation rates we need to consider whether we have an adequate statistical specification. The Cambodian study (2004) does not present any diagnostics, though it utilizes robust standard errors which are commonly used when heteroscedasticity is present in the estimation. As Gujarati (2004) notes, if the sample is a large one can use robust standard errors; however it is good practice to report such output along with the OLS output as heteroscedasticity may appear also as a result of misspecification.

We start the specification search by examining the residuals of the regression model from equation 6.3 since large outliers may reflect incorrect functional form, non-normality and heteroscedasticity or indeed administrative recording errors. Investigation of the residuals suggests that there are a few observations with large residuals as shown in the Table 6.3.

**Table 6.3 Residuals of the continuation rate 10-11/11-12 model**

Residuals				
-----				
	Percentiles	Smallest		
1%	-22.25322	-22.82871		
5%	-13.2244	-22.25322		
10%	-10.73001	-16.53228	Obs	168
25%	-4.084334	-15.342	Sum of Wgt.	168

50%	.7406006	Mean	1.41e-08
	Largest	Std. Dev.	7.705093
75%	3.920702	16.45814	
90%	8.203696	17.93789	Variance 59.36846
95%	14.0047	19.76925	Skewness .1483981
99%	19.76925	30.55098	Kurtosis 4.597573

There is one large residual of 30, which is nearly four standard deviations from the mean. We have examined this residual and found that the other observations from this school and specifically for this cohort do not have large residuals. Given that it is a very large outlier we estimate the regression without this observation, and report the diagnostics in Table 6.4 (the full results are in Appendix Table A6.1.2). No other observation is more than three standard deviations from the mean, though two other observations are close to that.

The diagnostic statistics of the estimation for the classes 10-11/11-12 suggest we reject the null hypotheses of the model being correctly specified, homoscedasticity and normality at the 5% level or higher. The latter statistic on normality must be interpreted with caution here given the relatively small size of our sample.

**Table 6.4. Diagnostics of the level model of the class 10-11/11-12 continuation rates**

Tests	Level Model	P-value	Hypothesis	Accept/ Reject
<b>Functional Form</b>	F(3,151)=4.81	0.003	Ho: Linear relationship	Reject H <sub>0</sub>
<b>Normality</b>	CHSQ(1)= 8.19	0.017	Ho: Normality in residuals	Reject H <sub>0</sub>
<b>Heteroscedasticity</b>	F(1,165)=4.17	0.043	Ho: Homoscedasticity	Reject H <sub>0</sub>

We continued further by examining the functional form. One form of misspecification is using level of a variable when the log of the variable is more appropriate (Wooldridge, 2007) and the initial equation was transformed trying the following forms: semi log (log-linear), log-log and semi-log (linear-log). We start with the semi-log:

$$\begin{aligned} \text{LnCrlead} = & S_0 + S_1\_class2 + S_2\_femalepc + S_3\_povertyp + S_4\_ethnicg + S_5\_AttEVG + S_6\_ecdummy + \\ & S_7\_EPIPActive + S_8\_prdummy + S_9\_myofex + S_{10}urbrur\_1 + S_{11}TeUHPS + S_{12}extavg + v \end{aligned} \quad (6.4)$$

In this model (Table 6.5 and Appendix Table A6.1.3) there is sufficient evidence to reject the null hypotheses of correct functional form and homoscedasticity at the 1% level. The null hypothesis on normality is rejected at the 5% level. The diagnostics do not suggest overall that this model is to be preferred to the linear model.

**Table 6.5 Diagnostics of the semi-log model of the class 10-11/11-12 continuation rate**

Tests	Log Model	P-values	Hypothesis	Accept/Reject
<b>Functional Form</b>	F(3,151)= 5.9	0.001	Ho: Linear relationship	Reject H <sub>0</sub>
<b>Normality</b>	CHSQ(1)= 7.93	0.019	Ho: Normality in residuals	Reject H <sub>0</sub>
<b>Heteroscedasticity</b>	F(1,165)=13.09	0.000	Ho: Homoscedasticity	Reject H <sub>0</sub>

We continue with the log-log model, however we note that as well as dummy variables the economic status and poverty variables may have a value of 0 and therefore are not logged. Thus the model is as in equation 6.5:

$$\begin{aligned} \ln Crlead = & S_0 + S_1\_class2 + S_2\ln femalepc + S_3povertyp + S_4ethnicg + S_5\ln AttEVG + S_6ecdummy + \\ & S_7EPIPActive + S_8prdumy + S_9myofex + S_{10}urbrur\_1 + S_{11}TeUHPS + S_{12}extavg + V \end{aligned} \quad (6.5)$$

The diagnostics of the log-log model of the class 10-11/11-12 continuation rate are not an improvement on the linear model. The detailed diagnostics and estimation of the log-log model of the class 10-11/11-12 is found in the Appendix Table A6.1.4. The final model is the linear-log model as follows in the equation 6.6 and we present the diagnostics of the linear-log model of the class continuation rate 10-11/11-12 in the Table 6.6 and Appendix Table A6.1.5

$$\begin{aligned} Crlead = & S_0 + S_1ClassY + S_2\ln femalepc + S_3povertyp + S_4ethnicg + S_5\ln AttEVG + S_6ecdummy + \\ & S_7EPIPActive + S_8Pr dummy + S_9myofex + S_{10}Urban\_1 + S_{11}TeUHPS + S_{12}extavg + V \end{aligned} \quad (6.6)$$

**Table 6.6 Diagnostics of the linear-log model of the class 10-11/11-12 continuation rate**

Tests	Log Model	P-values	Hypothesis	Accept/Reject
<b>Functional Form</b>	F(3,151)= 2.82	0.041	Ho: Linear relationship	Reject $H_0$
<b>Normality</b>	CHSQ(1)= 8.74	0.013	Ho: Normality in residuals	Reject $H_0$
<b>Heteroscedasticity</b>	F(1,165)=4.85	0.029	Ho: Homoscedasticity	Reject $H_0$

The diagnostics of the linear-log model of the class 10-11/11-12 continuation rate are still problematic, although there is a slight improvement in the p-value for functional form, and a slight worsening for homoscedasticity.

Given this we proceed with interpreting the linear model. In the preferred model homoscedasticity is rejected at the 5% significance level, and thus our OLS standard errors may be invalid. The robust standard errors provide corrective action for this, though since this is a large sample technique and we have only 154 degrees of freedom in the estimation these need to be regarded with caution. In small samples robust  $t$  statistics can have distributions that are not very close to the  $t$  distribution which is problematic for inference. The full estimation of this model is presented in the Table 6.7.

**Table 6.7 Estimation of the linear model and cluster robust standard errors of the class 10-11/11-12 continuation rate**

Variable	Linear Model Class 10-11/11-12	P-value for the linear model 10-11/11-12	P-value for the cluster robust standard errors
	Dy/dx	$P >  t $	$P >  t $
Class 2 (dummy)	5.147***	0.000	0.001
Females	0.070	0.190	0.242
Student socio-economic status	-0.329	0.417	0.560
Ethnicity	-0.635**	0.012	0.032

Attainment	0.232***	0.000	0.001
EPIP school (Dummy)	-3.310*	0.032	0.085
EPIP treatment (dummy)	3.621**	0.054	0.040
Prishtina school (dummy)	3.064	0.105	0.217
School directors' years of experience	-0.097	0.368	0.426
Urban (dummy)	2.009	0.253	0.189
Teacher Education (University and High Pedagogical School)	0.023	0.889	0.882
Teacher Years of Experience	-0.270	0.582	0.586
_cons	82.493	0.000	0.000
N=167			
Adj. R squared = 0.37			
F(12, 154)=9.22			
Prob>F=0.00			

Notes: Significant at \*\*\*1%, \*\*5% and \*10% using cluster robust standard errors.

In cases where we suspect heteroscedasticity, then the usual OLS standard errors are invalid and corrective action should be taken. In addition, as our data sample is class cohorts from the schools we cluster by schools. The total number of clusters in our sample is 28. The robust standard error usage is justified if the sample size is reasonably large, which is somewhat problematic in our case. Thus we present P-values based on both the standard and cluster robust standard errors. There is little difference in significance between these two measures in these results, though we comment on any large differences below. The Cambodian study (2004) reports cluster robust standard errors to take into account possible heteroscedasticity and the pooling of the observations by school. We note that most of the studies that are similar to our own research also used cluster robust standard errors. (Campbell 2004, Skoufias and Shapiro, 2006), but given the caution above on sample size we compare the significance levels reported in columns 2 and 3 of Table 6.7. Although the significance levels are broadly similar in the two estimations, there are some changes between the 10% and 5% levels that relate to our investigation which we mention below.

The cluster robust estimation of the linear model for the classes 10-11/11-12 gives four significant explanatory variables at the 5% level or above, all of which have the expected

signs: the class and attainment variables are significant at the 1% level, and the ethnicity and the EPIP treatment variables are significant at the 5% level. The standard estimation also gives four variables significant at these levels, three of which are the same as with the cluster robust standard errors: the class variable and attainment at the same level of significance; and ethnicity at the 1% level. EPIP dummy is also significant at the 5% percent level; this is significant at the 10% level with cluster robust standard errors, but the EPIP treatment variable, which is our variable of interest, has a p-value of 0.054, marginally above the 5% significance level in this estimation.

Some of continuous variables in the dataset have different units of measurement and there are also very different means and standard deviations for those variables that are in percentage points. Thus in addition the standardized beta coefficients for the continuous variables are also discussed. Standardized coefficients have a mean of zero and standard deviation of one. The results are presented in Appendix A6.1.6.

The interpretation of the significant variables that follows is on average, other things being constant. The results suggests that higher level class cohorts (11-12) compared to the class cohorts 10-11 (class 2 variable) experience an increase of by 5 percentage points in the continuation rate. If the percentage of students with excellent and very good performance increases by 1 percentage point, then the continuation rate increases by 0.2 percentage points. If the ethnicity percentage increases by 1 percentage point then the continuation rate will decrease by 0.6 percentage points. However, a one percentage point increase in ethnicity (which has a mean of 4.8) is proportionally a much larger change than a one percentage point change in attainment (which has a mean of 38.61) as shown in A6.1.6. The Beta coefficients suggest that the effect of a change in attainment is relatively stronger, a decrease of one standard deviation in the ethnicity leads to a decrease of 0.2 standard deviation units in the continuation rate, whereas an increase in attainment by one standard deviation increases the continuation rate by 0.4 standard deviation units.

The EPIP dummy has a negative sign which suggests that on average if a school is an EPIP school it has a 3.3 percentage points lower continuation rate than the other schools. In our

estimation we included controls for the poverty and ethnicity as these were the decision criteria for inclusion in the EPIP programme, and in the case of ethnicity this variable was significant. Hence these results suggest that school performance was lower in the schools chosen to participate before their intervention, even having taken account of differences due to poverty and ethnicity. The quantitative data used for poverty and ethnicity during the selection of the school into EPIP in the beginning were identical to the data utilized for those independent variables in this research. Thus the EPIP dummy may be acting as a proxy for different factors that distinguishes schools that were initially chosen to take part in the programme. For instance the school grants board may have used additional qualitative information such as previous written reports from schools field inspectors.

The results of the estimation of the impact of school development grants on continuation rates for classes 10-11/11-12 suggests that the EPIP programme may have raised the continuation rates. The EPIP treatment variable has a positive sign and the results suggest that schools that participated in the EPIP programme have had on average an increase of 3.6 percentage points in continuation rates, other things being constant. The results suggest that the policy has targeted the ‘right schools’ in terms of poverty level and ethnicity group, given that these are estimated to have a negative effect on continuation, although poverty is not significant in the estimation. The estimate of a 3.6 percentage point increase in the continuation is economically meaningful in terms of bringing treatment schools closer to the performance of non-treatment schools. In such cases we can imply that the objective of school development grants has been achieved in terms of better continuation rates, however from the data available we cannot assess the cost-effectiveness of this Programme. In order to examine the size of the impact further we predicted the continuation rates for the two sub-groups: treatment and non-treatment. This prediction was at the mean values of the other variables in the two groups. The result gives a continuation rate of 91.1 percent in the comparison group and 90.8 percent in the treatment group. Thus the effect is to bring the ‘disadvantaged’ schools in the programme close to the performance of other schools.

As a robustness check we have also estimated the model without including attainment, given the possible endogeneity with this variable and the approach of the Cambodian study, though



in our estimations it is a significant variable. For the clustered robust standard errors the EPIP treatment has the expected sign and is significant at the 5% level, as in the previous estimation. In standard estimation the EPIP treatment variable is only significant in this model at just over the 10% significance level, but again has the expected positive sign and is approximately the same magnitude as in the estimates with attainment included. The full detailed of the estimation and diagnostics are presented in the Appendix Tables A6.2.1 and A6.2.2 for the linear model which is our preferred model for the class continuation rate 10-11/11-12. When we compare the models with and without attainment for the other variables the estimated coefficients largely have the same sign and significance.

### **6.3.2 Specification search and results of the continuation model for the class 12-13 only**

In this section we estimate continuation rate from equation 6.3 for the class 12-13 only. We start our specification search by initially examining the residuals, Table 6.8. We note that there are no residuals more than two standard deviations from the mean. We estimate the initial model specification which is a level model and obtain the diagnostics as presented in Table 6.9.

**Table 6.8 Residuals of the continuation rate 12-13 model**

Residuals					
-----					
	Percentiles	Smallest			
1%	-46.85181	-46.85181			
5%	-37.59013	-45.51329			
10%	-31.58875	-44.22251	Obs	75	
25%	-16.44343	-37.59013	Sum of Wgt.	75	
50%	-5.86338		Mean	-4.45e-08	
		Largest	Std. Dev.	24.13334	
75%	18.8216	41.90729			
90%	34.98382	42.55027	Variance	582.4183	
95%	41.90729	46.51813	Skewness	.0977102	
99%	46.57161	46.57161	Kurtosis	2.17539	

**Table 6.9 Diagnostics of the linear model of the class 12-13 continuation rate**

Tests	Log Model	P-values	Hypothesis	Accept/Reject
<b>Functional Form</b>	F(3,60)= 2.55	0.064	Ho: Linear relationship	Reject H <sub>0</sub>
<b>Normality</b>	CHSQ(1)= 4.61	0.100	Ho: Normality of errors	Reject H <sub>0</sub>
<b>Heteroscedasticity</b>	F(1,73)=0.52	0.427	Ho: Homoscedasticity	Accept H <sub>0</sub>

The diagnostics of the level model suggest there is sufficient evidence to reject the null hypothesis of correct functional form and normality at the 10% significance level although not at the 5% level). There is, however, insufficient evidence to reject the null hypothesis on homoscedasticity.

Since it is not recommended to reject the null hypothesis at 10% of diagnostics, we continue the specification search by transforming the level form into semi-log (log-linear), log-log and semi-log (linear-log) form. As was the case with class 10-11/11-12 in the previous subsection the semi-log and log-log model do not improve the diagnostics (see appendices

A6.3.2 and A6.3.3). We also estimate the linear-log model (see Appendix A6.3.4 and A6.3.5) and get the following diagnostics presented in Table 6.10:

**Table 6.10 Diagnostics of the linear-log model of the class 12-13 continuation rate**

Tests	Log Model	P-values	Hypothesis	Accept/Reject
<b>Functional Form</b>	F(3,60)= 3.04	0.036	Ho: Linear relationship	Reject H <sub>o</sub>
<b>Normality</b>	CHSQ(1)= 3.81	0.149	Ho: Normality of errors	Accept H <sub>o</sub>
<b>Heteroscedasticity</b>	F(1,73)=0.15	0.703	Ho: Homoscedasticity	Accept H <sub>o</sub>

The diagnostics of the linear-log model suggest that there is not sufficient evidence to reject the null hypothesis on normality and homoscedasticity at the 10% level. However, the null hypothesis of the correct functional form is rejected at the 5% significance level but not at 1%. Given this there is no clear decision on the appropriate model and given that both models have the same significant coefficients we proceed with discussing in more detail the estimations of the linear model, the results of which are presented in Table 6.11. Although there is not sufficient evidence to reject the null hypothesis on homoscedasticity for the class 12-13 continuation rate, our data sample is class cohorts from the schools so we present P-values based on cluster robust standard errors.

**Table 6.11 Estimation of the linear model of the class 12-13 continuation rate**

Variable	Linear Model Class 12-13	P-value for the linear model 12-13	Cluster robust P-Value
	dy/dx	P>   t	
Females	-0.437	0.091	0.156
Student socio-economic status	4.778**	0.040	0.043
Ethnicity	0.205	0.855	0.875

Attainment	-0.062	0.802	0.846
EPIP school (dummy)	-1.719	0.814	0.840
EPIP treatment (dummy)	1.222	0.902	0.854
Prishtina school (dummy)	4.706	0.651	0.614
School directors' years of experience	1.095	0.037	0.124
Urban (dummy)	-13.214	0.116	0.203
Teacher Education (University and High Pedagogical School)	0.497	0.523	0.536
Teacher years of experience	0.705	0.764	0.720
_cons	-9.452	0.908	0.915
N=75			
Adj. R squared = 0.16			
F(10, 64)=2.24			
Prob>F=0.02			

Notes: Significant at \*\*\*1%, \*\*5% and \*10% for the cluster robust standard errors.

The estimation of the linear model of the class continuation rate 12-13 gives only one significant variable using the cluster robust standard errors - poverty- while for the standard P-values there are three significant variables at 5% and 10% significance level, female, poverty and director's years of experience. The EPIP treatment which is our variable of interest has the expected positive sign but it is not significant in this class continuation 12-13 model.

We consider the significant variables in more detail. The female variable has a negative sign as expected and suggests that on average if the percentage of females is higher by 1 percentage point in the class cohort then the continuation rate will decrease by 0.4 percentage points. For a one standard deviation increase in the female variable (which has a mean of 43.63) there is 0.2 standard deviations decrease in the continuation rate for the class 12-13. The poverty variable in Table 6.11 does not have the expected negative sign. The beta coefficient suggests that for one standard deviation increase in the poverty (which has a mean of 2.3) there is a 0.2 standard deviation increase in the continuation rate for the class 12-13. As discussed in section 6.2, we are using a proxy which may not be ideal but is the best available, however this result is not readily explainable. The director's years of experience variable has a positive sign which is expected which suggests that on average if school management staff have one more year of experience the continuation rate will increase by 1.1

percentage points. This supports the hypothesis that schools with better school management capacities perform better, holding other things equal. A one standard deviation increase in management years of experience (which has a mean of 26.96) will increase the continuation rate by 2.4 standard deviations. Overall we note that the continuation rate model for the class 12-13 only has considerable problems.

We have also estimated the continuation rate model class 12-13 without the attainment variable (Appendix A.6.4) and the results are quite similar. The same three variables are significant in this version, though we note that attainment is not significant. Our variable of interest, EPIP treatment, is again not significant in this version.

#### **6.4 Fixed effects**

Wooldridge (2002) argues that fixed effects transformation may be useful in evaluating policy initiatives, though it has yet to be used in the evaluation of educational policy initiatives in developing countries. This technique is argued to be superior to other techniques, such as pooled OLS, because this method keeps other things constant and it is likely that unobserved factors at the school level are not changing over time (Wooldridge, 2002).

Two years of data with a treatment and comparison group can be sufficient to use panel data (Wooldridge, 2002). However, for the purpose of this research we do not have two years for each class as explained in section 6.2 (e.g. class 12 of latest year of the data does not have a second data point), which reduces the sample size considerably. The results are presented in Table 6.12 and in full in Appendix A6.5 (see Appendix Tables A6.5.1. and A6.5.2.).

**Table 6.12 Estimation of fixed effect model 10-12**

Variable	Fixed Effects Model Class 10-12	P-value for the fixed effects model 10-12	Cluster robust P-Value
	Dy/dx	P>   t	
Class 2	7.639***	0.001	0.001
Females	0.384	0.104	0.136
Student socio-economic status	-0.188	0.785	0.185
Ethnicity	0.130	0.898	0.896
Attainment	0.426**	0.016	0.016
EPIP treatment (dummy)	-0.239	0.602	0.577
Year 2	-0.175	0.392	0.391
_cons	52.81	0.000	0.001
N= 167			
Adj. R squared =			
F(7,49 )= 5.84			
Prob>F= 0.001			

Notes: Significant at \*\*\*1%, \*\*5% and \*10%

Variables such as: EPIP school (dummy), Prishtina school (dummy), school directors' years of experience, urban/rural (dummy), teacher education, teacher years of experience are not reported in our estimation because they are time invariant. A time variable is included to reduce the possibility of cross-sectional dependence. The overall F statistic is highly significant, but only two variables are significant, the class variable and attainment, the former at the 1% level and the latter at the 5% level. Both of these variables were also significant in our OLS estimation. The higher class is estimated to have a higher continuation rate of 7.6 percentage points. Classes with higher attaining students also have a higher continuation rate, if the percentage of those with very good or good performance goes up by one percentage point then the continuation rate increase by 0.4 percentage points. The EPIP treatment was not significant and hence does not support the tentative supportive finding of the OLS estimation.

## 6.5 Conclusion

This chapter initiates our empirical analysis with the estimation of the impact of school development grants on student dropout for the class cohorts 10-12 (28 schools) and separately for 12-13 (23 schools). The discussion in this chapter commences with specification of the dropout model, including variable definition and explaining the class cohort analysis for the purpose of our research. This research is amongst the first of this type of policy evaluation in Kosovo and has utilized various estimation techniques: regression analysis and fixed effects model. While regression analysis has been used in similar evaluations in other developing countries, the fixed effects model is still a novelty in the evaluation of these kinds of education policy initiatives. In addition we have improved on the data used in previous studies of this type by obtaining data on a comparison group and adding additional data on teacher and management characteristics to the regression model. In carrying out our estimations we have also reported the diagnostics which is surprisingly rare practice in evaluation of policy initiatives in developing/transition countries.

The estimation of the impact of school development grants for class 10/11-11/12 on dropout suggests that EPIP programme did have a positive impact on school continuation rates. Taking account of the selection criteria, such as poverty and ethnicity, the estimates suggest that schools' participation in the Programme improved their continuation rates by 3.6 percentage points (although this was only significant at a little over the 5% level). There is no evidence of improvement in continuation rates for the older class cohort of 12/13. Also, the fixed effects estimation did not provide supporting evidence of a significant positive Programme effect.

This research suffers considerable data problems, despite the best efforts of the author; however this research is the first educational impact evaluation for Kosovo. The evaluation method is based on a similar study on Cambodia, but with several advancements. As such it is the best estimate currently available of the affect on the continuation rate of this important aid programme.

## CHAPTER 7 ESTIMATION OF THE IMPACT OF SCHOOL DEVELOPMENT GRANTS ON STUDENT ATTENDANCE AND ATTAINMENT IN KOSOVO

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## **7.1 Introduction**

The objective of the World Bank Education Participation Improvement Project (EPIP2) was to improve the quality of education by the provision of school development grants. Such improvements in education quality for the purpose of the EPIP2 programme were to be measured in terms of the following performance indicators in the target schools: 1. lower dropout; 2. improved attendance rates; and 3. higher attainment. Chapter 6 analysed the impact of the school development grants on dropout. In this chapter we continue with a discussion on their impact on attendance and attainment. The hypothesis is that the financial incentives given to selected schools impact on attendance and attainment for the better. We start our discussion with attendance in the following section where we examine the particular problems facing the author in Kosovo. In section 7.3 we specify an attendance model and in section 7.4 we examine endogeneity problems likely to arise in modelling attendance and estimation with instrumental variables. Year 13 is not considered in the analysis of attendance as it was felt that there would be different relationships in the last year of schooling where the diploma is awarded (and is only attended by the selective group of students continuing on from compulsory education).

We start in section 7.5 the examination of student attainment from the standpoint of the EPIP programme; here we review the features of student attainment in Kosovo. In section 7.6 we specify an attainment model and in the section 7.7 we estimate that model using regression analysis. Section 7.8 concludes the discussions of the effect of the programme on these two performance measures.

## **7.2 Student attendance: country-specific data problems**

Before we continue further in the analysis of the impact of school grants on attendance it is important to note that there were country-specific data problems with attendance which were identified throughout this research and discussed in detail in section 5.4. The issues were related to difficulties with the attendance data in Kosovo: particularly its completeness and reliability. Absenteeism appeared to be under-reported for all levels of pre-university education in Kosovo, even though data were more complete for the secondary level on which

the investigation summarised in this chapter is based. The field trips undertaken by the author to schools suggested that systematic under-reporting was present, which is common in post-conflict countries such as Kosovo with widespread poverty and deficiencies in the overall education system as discussed in chapter 1. As noted in chapter 5, problems of incompleteness, inaccuracy and inconsistency in attendance data have also been found in developed countries. For example, research suggests that there are difficulties in assessing attendance data in UK, with NAO (2005) identifying some of the major weaknesses as: incompleteness, inaccuracy and inconsistency. These weaknesses in the attendance data in UK schools refer in part to post-registration truancy, which leads to incomplete attendance data. Schools do not spend enough time recording and monitoring absences and there are inconsistencies in absence data categorisation among schools. Another obstacle, which seems to be the case for most countries, is a lack of access to attendance data at student level which leads to difficulties in analysing the impact of contextual factors on certain groups, for example, student absences based on ethnicity.

The above paragraph acknowledges various data issues which were identified throughout our research with attendance data which are similar to problems found in previous research. Working with attendance data is a challenge and this to some extent also explains the scarcity of research on this topic. Given all these difficulties this research presents the first attempt to work with attendance data in Kosovo, and also serves as a reference point for identification and discussion of the potential problems that may be encountered when working with such data. As such the results of this part of the chapter should be viewed with caution and the analysis should be seen as an illustration of the possible methods that may be utilized when better quality data are available.

Before starting with the model specification it is important to note that absences are recorded at the class cohort level and data at the student level are still not available in Kosovo. In order to measure the impact of the grants the focus is on the absence rate and changes over time. We have looked at total recorded absences even though there are two types identified in Kosovo: justified and unjustified, which are explained in section 5.4. We base our analysis on total absences to avoid possible variation across classes and schools in how the absences are classified between justified and unjustified. In this way we lower possible bias from

different school behaviour when making decisions on classifying absences. The absences registered are per class missed and are reported as the total for a certain year of education.

We start our model specification by defining the dependent variable. For the purpose of our research we define the absence rate (AR) as the number of absences in the year divided by total number of students and average lessons that they have in one year. Since not all the schools have reported the number of lessons they conduct per year we take an average number of lessons which amounts to 700 lessons per year for all the schools. The number of the lessons takes into account national holidays and other possible disruptions such as lack of heating which leads to cancelled classes.

$$AR = \frac{\text{Student absences}}{\text{No. of students} \times \text{Average lessons per student}} * 100 \quad 7.1)$$

The initial calculation of the absence rate suggests that there is significant variation among schools in terms of the absence rate. As discussed in chapter 5, the absence rate varies from as low as 0.25 % to 25%. In order to determine if such variation is the case for the treatment and comparisons group we proceed with calculation of the means and standard deviations separately for each group. The calculations suggest that these variations are broadly similar for the treatment and comparison groups and do not suggest any difference between classes in the treatment and comparison groups in terms of mean and standard deviation. We present the means and standard deviations in Table 7.1.

**Table 7.1 Absence rate means and standard deviations for the treatment and comparison group**

	Treatment Group		Comparison Group	
	Mean	Standard Deviation	Mean	Standard Deviation
<b>Class 10</b>	3.08	1.74	3.13	1.80
<b>Class 11</b>	3.61	2.31	3.44	2.20
<b>Class 12</b>	4.05	2.23	3.92	2.38

### **7.3 Initial model specification**

As in the case of student dropout, human capital theory rather than the education production function approach has usually been the starting point for developing models of student attendance. Its implications for the choice of independent variables related to gender, poverty and ethnicity in the specification are similar to those for student dropout, but with an opposite sign given the definitions of the dependent variable is the absence rate. The empirical evidence from the studies on attendance reviewed in section 2.4 suggests that student, school and household characteristics have an impact on student attendance (Sackey, 2007; Higgins et al., 2008). For the purpose of our model we will use the explanatory variables presented in Table 7.2 which include student characteristics at the class cohort level, school characteristics and household characteristics such as socio-economic status of the students. Their inclusion is justified in detail in the following section. There are no data available on certain household characteristics, such as parental education of the students, which prevents their inclusion in the model.

**Table 7.2 Variable name, level, description, descriptive statistics and expected coefficient sign**

<b>Variable Name &amp; Acronym</b>	<b>Variable Level</b>	<b>Variable Description</b>	<b>Mean / Proportion</b>	<b>St. Dev.</b>	<b>Expected Sign</b>
<b>Dependent Variable</b>					
Absence Rate (AbR)	Class cohort level	Absence rate %	4.08	3.40	
<b>Independent Variables</b>					
Females (Femalepc )	Class cohort level	Females in the class cohort %	45.34	16.22	–
Student socio-economic status (Povertyp)	Class cohort level	% of the students in the class cohort whose households are supported under the Social Assistance Scheme	2.84	2.69	+
Ethnicity (Ethnicg)	Class cohort level	% of the class cohort who are not Albanian	5.15	3.52	+
Student attainment (AttEVG)	Class cohort level	% of students with excellent and very good performance	41.58	18.36	+
EPIP School (Dummy) (Ecdummy)	School level	1 = EPIP school, 0 = if not	.5		+
Treatment (dummy) (EPIPActive)	School level	1 = EPIP is in operation in EPIP school 0 = if not	.25		–
Prishtina schools (dummy) (prdummy)	School level	1 = Prishtina, 0 = other	.21		+
School Director's Years of Experience (myofex)	School level	School Director's Years of experience, 2007	26.96	7.60	–
Urban/Rural (urbrur_1)	Municipality level	1 = urban 0 = rural	.60		–

Females – According to evidence from past studies, if female students continue with secondary schooling they are less likely to manifest truant behaviour than male students (Trunk, 2003). In the Kosovo traditional setting, the rationale behind this is that if female members of the family are encouraged to continue with schools then they are likely to be

more regular in attending classes than boys. Our hypothesis is that the absence rate will be lower for females and as such the expected coefficient sign is negative.

**Student socio-economic status** –The main hypothesis is that when parental income is low the likelihood of a child quitting schooling for work increases, simply to reduce the costs associated with attending school, such as travel costs. Poverty remains as one of the main challenges which directly impact on the decision to send children to work rather than school and classes may be missed when opportunities for working arise (Basu, 1999). Poverty may also affect health which causes further poor attendance. For the socio-economic status we will use the proxy variable which has been explained in detail in section 6.2. Our hypothesis is that classes with higher proportions of students from households receiving support under the Social Assistance Scheme have a higher number of absence rates, thus the expected sign is positive.

**Ethnicity** – According to the evidence from previous studies examined in section 2.4, marginalized risk-averse groups such as minority ethnic groups, facing low prospects of post-schooling employment which carries a high education premium, are less likely to attend on a regular basis. Thus the hypothesis is that classes with a higher proportion of non-Albanian ethnic groups have higher absence rates, giving an expected positive sign.

**Student attainment** – The hypothesis is that students with better attainment levels are more likely to attend classes, thus the expected sign is negative. This variable is discussed further in section 7.4 because of the possible endogenous relationship with our dependent variable.

**EPIP School (Dummy)** – This variable has been defined in section 6.2 in detail. The variable distinguishes schools that took part at some point in time in the EPIP programme from schools those which did not. The schools chosen for the EPIP programme were intended to be ‘disadvantaged’ ones and in greater need of assistance and thus a positive sign is expected for the coefficient of this variable.

**Treatment (Dummy)** – This variable has also been defined in detail in section 6.2 and it captures the effect of the implementation of EPIP in treatment schools. The hypothesis is that the schools with the EPIP programme in operation will have a lower absence rate compared to the schools where EPIP is not in operation.

**Prishtina Schools** – This variable identifies those schools which are in the capital city. As we have noted in the previous chapter, in Kosovo there is a trend of internal migration with the

tendency of moving towards bigger cities specifically the capital city, Prishtina. As such our hypothesis is that schools in the capital may be overloaded with students as a result of internal migration, as described when this variable was used for the continuation model in section 6.2. If schools have high inflows, students' classes will have more than the regular number of students and schools may find it difficult to monitor and follow up truants. The higher student inflows in the schools which are located in the capital city may have led to higher absence rates and the expected coefficient sign is positive.

School Director's Years of Experience – As explained previously this variable is a proxy for school management capacity. The hypothesis for attendance is that better school management capacities will improve the overall performance of the schools (for example better attendance policies) which would result in lower absence rates.

Urban/Rural – The variable is defined as in section 6.2. The hypothesis for the attendance model is that students in urban areas are likely to attend a greater proportion of classes than students in the rural areas and as such absence rates are lower in urban areas. The rationale behind is that students in the rural areas are expected to join their respective households in agricultural work during the peak seasons and are more prone to not attending school. The expected sign for this variable is negative.

Our initial linear model specification is as follows:

$$AbR = S0 + S2femalepc + S3povertyp + S4ethnicg + S5AttEVG + S6ecdummy + S7EPIPActive + S8prdummy + S9myofex + S10Urbrur\_1 + v \quad (7.2)$$

As we can see from equation 7.2, the initial model specification of attendance includes attainment which previous research has suggested may be jointly determined with attendance. If attainment is determined partially as a function of attendance then attainment is also correlated with the error term. A simultaneous relationship between attendance and attainment may lead to biased and inconsistent estimates as a result of endogeneity. This issue is discussed further in the next section.

## 7.4 Endogeneity

### 7.4.1 *The relationship between attendance and attainment*

As we have discussed in section 5.2 there is agreement that there is likely to be a positive correlation between attendance and attainment. The hypothesis behind the relationship between attendance and attainment is that students with better attainment are more motivated and as a result are more likely to attend classes. However, as students attend more classes they are more likely to do better in assessments, on the condition that they are engaged in learning, hence the possible two-way relationship as discussed in section 5.2.

Although several studies have considered the relationship between attendance and attainment only a few of these have investigated empirically the issue of possible endogeneity. Endogeneity has often been mentioned as a potential threat, but then not accounted for in the empirical work. Durden and Ellis (2003) found that student attendance may have some effect on performance but used attendance as a proxy for the internal motivation of the student to do better in class. They did not account for the endogeneity. A UK study on student attendance (NAO, 2005) suggests that attendance in secondary schools is related to attainment and suggests that such a relationship is circular, but again they do not investigate formally any causal relationship between these two. Colby (2004) found that the relationship between attendance and attainment is positive but decreases in the last years of schooling but once again this research did not investigate the possible endogeneity. A larger scale study looked into the relationship between attendance and attainment by evaluating university award programmes and found that students with regular attendance also had better attainment (Newman-Ford et al., 2008). A more recent study by Gottfried (2009) found a positive relationship between attendance and attainment at the primary and secondary level by estimating the causal impact of attendance on multiple measures of attainment, such as GPA and external examinations tests, using an instrumental variable estimation. As we see from the above studies even though the relationship between attendance and attainment has been explored to some extent, only a few recent studies have investigated possible endogeneity due to simultaneity.



As discussed in section 5.3, endogeneity can occur as a result of omitted variable, measurement error and simultaneity. Simultaneity arises when one or more of the explanatory variables are jointly determined with the dependent variable. In addition to the causal link from the independent variables to the dependent variable there is also a reverse link. As such the error term is also correlated with the independent variable which leads to the failure of one of the CLRM assumptions and as a result the estimates are biased and inconsistent. In this investigation student attendance and student performance may be affected by simultaneity. However, there are issues of timing which may lessen the problem: previous attainment may affect current attendance, but current attendance can only affect current and future, not past, attainment. In section 7.4.3 methods that would lessen the potential endogeneity issue are further explored.

#### **7.4.2 Paired t-test of the absence rate**

We start our analysis with a simple paired t-test which does not consider causality, but was carried out in the Cambodian study (Marshall, 2004). This method compares the means of the treatment and comparison groups in order to track for any differences between the two groups. However, we need to be aware of the limitations of this procedure, which does not keep other factors constant and, as noted in section 5.4, we do not have a randomised trial in this study (nor indeed did the Cambodian study). We will make two tests for both the treatment and comparison groups. Firstly, comparing the base year (which for EPIP schools was before the start of EPIP) and year 1 (which for EPIP schools was the first year EPIP was active). Secondly comparing base year and year 2 (for EPIP schools the second year EPIP was active). In this case year 2006/07 is the base year with years 10, 11 and 12 and we compare this with their respective performance in firstly 2007/08 (year 1) and then 2008/09 (year 2). Each group contains 14 schools which gives a total of 42 schools. The results are presented in Table 7.3

**Table 7.3 Paired t-test for of the absence rate over time for the treatment and comparison groups**

	Treatment Group		Comparison Group	
Attendance Rate	Mean	Pr (  T  >   t   )	Mean	Pr (  T  >   t   )

Base Year	3.80	0.032	2.98	0.117
Year 1	3.18		3.25	
Base Year	3.80	0.039	2.98	0.001
Year 2	3.21		3.89	
N=42				
Ho: mean (diff) = 0				
H <sub>1</sub> : mean (diff) = 0				

The results suggest that in the treatment group in the first comparison (base year to year 1) the absence rates are decreasing, with a decrease of 0.62 in the mean, a 16% improvement, which is a significant difference at 5% level. In the comparison group we see an increase in the mean, of 0.27, although the change is not significant. A similar difference is also found in the second comparison made between base year and year two for the treatment group, of 0.59, which is significant at the 5% level. The second year gives a larger increase in the absence rates in the comparison group which is significant at the 1% level. In this non-treatment group attendance has worsened by 31% over the period. The results suggest changes in the treatment group for the better, though this analysis does not account for changes in other control variables that may have had an impact on the absence rate, since it assumes that there are no changes in the other independent variables that effect absence rate from year to year. Given this we continue with multivariate analysis in the following section which allows us to control for student, school and household characteristics.

#### 7.4.3 *Estimation using instrumental variables*

In order to consider instrumental variables (IV) estimation for our model we refer back to the linear model in equation 7.2 where our assumption is that the attainment variable may be correlated with the error term because of simultaneity. The other variables in the linear model are assumed to be exogenous. The method of instrumental variable estimation provides a possible solution to the problem of an endogenous explanatory variable. To use this approach we need a variable(s) that is not in the original model and satisfies two conditions: firstly it is not correlated with error term; and secondly it is correlated with the variable to be instrumented. There are two possible instrumental variables that may satisfy such conditions

available in our data: teachers' education and teachers' years of experience. These possible instrumental variables are discussed below to consider if they meet the criteria for an IV before continuing further.

**Teachers' education** - Research suggests that a higher level of teacher's education may have a role in creating and maintaining a better student achievement, which means the second condition for an IV may be satisfied. More specifically there is some evidence that high school students learn more from the teachers who have a degree in the subject they are teaching (NCES, 2000). A review of studies on the impact of teacher characteristics on achievement suggested that specific teacher education, for example in mathematics, may have an impact on the student achievement on that subject matter; however this was not the case for all the subject matters (Wayne and Youngs, 2003). In the Kosovar context attendance may be more related to new teaching methods that were introduced recently in the education system and stricter attendance policies imposed by school management, rather than the teacher's level of education, which may mean that the first criteria is also satisfied.

**Teachers' years of experience** - According to the literature the results of the impact of teacher's years of experience on student achievement suggest a positive relationship between the two. However interpretation of the impact of teacher's years of experience on student achievement has been found to be problematic. A report on student characteristics (Wayne and Youngs, 2003) reviewed 19 papers investigating this relationship and found that it is difficult to interpret their results because: firstly experience captures the effect of whether teachers were hired when there was a shortage or surplus of teachers in the education system; secondly it captures the level of teacher's motivation; and finally it may also proxy differences in the effectiveness between those who stay or leave the profession. Despite these challenges in the interpretation it was still concluded that teacher's years of experience impacts positively on student achievement. However, we could find no evidence in the literature of the teacher's years of experience directly impacting on student attendance, which may mean that this variable satisfies the first condition for an IV. However, theoretically it is arguable that teachers with more years of experience may work better with potential truants.

Our proposed instruments thus may satisfy conditions for a suitable IV and we will examine a two stage least square estimator using Teachers' education and Teachers' years of experience as IVs. The method starts with the first stage regression in order to check the strength of the instruments. If the instruments are weak our estimates are biased and we do not continue further with a second stage since Wooldridge (2002) suggests that if the instruments are weak OLS may be less problematic than IV estimation. With attainment as the dependent variable, we include all the variables presented in equation 7.2 and include the two instruments discussed above. We present the first stage equation results for the teacher education and years of experience as our instrumental variables model in the Appendix A7.1, with the test for the strength of the instruments in Table 7.4:

**Table 7.4 Test for the strength of the instrumental variables**

Variable	R-sq.	Adjusted R-sq.	Partial R-sq.	F(2,258)
Attainment	0.44	0.422	0.31	4.22
Ho: Instruments are weak				

The results suggest that our instruments are weak with an F-statistic of 4.22. F statistics with values under 10 are regarded as indicative of weak instruments and under 5 as highly problematic (Staiger and Stock, 1997). Hence we will not proceed with the IV estimation as with weak instruments the level of bias may be high (and indeed higher than with OLS) (Wooldridge, 2007). In Appendix A7.2 the OLS estimation together with diagnostics is presented. The diagnostics suggests that the model has considerable problems. The results from this OLS estimation suggest that EPIP active variable is positive and significant at 10%, but given the previous discussion this result needs to be regarded with particular caution.

#### **7.4.4 Estimation using past attainment in the model**

In this section we pursue an approach that, arguably, may remove the endogeneity problem. Attainment is usually measured at year-end, while attendance is a percentage measured over the whole year. Past attainment may directly impact on current attendance as it is already known to students. In such cases, if students did better throughout the previous year they are likely to be more motivated and feel more enthusiastic to attend classes in the following year and vice versa. An advantage of utilizing past attainment in the model specification is that

current attendance cannot impact past attainment and as such the possible endogenous relationship between the two is likely to be eliminated. However, this does assume that students are reacting to formal grading and not also to informal feedback during the year which constitutes part of the grade given at the end of the year. In the Kosovar education context, the class participation of the students is not embedded in the grading system and as such students are not obliged to participate. On balance, the inclusion of past attainment is to be preferred (though noting the caveat in the previous sentence) and the model is re-specified to include past attainment instead of current attainment.

The diagnostics of the estimation are presented in Table 7.5. We do not reject the null hypotheses of the model being correctly specified. However, normality is rejected at the 5% level (just) but homoscedasticity is rejected at the 1% level. The latter statistic on normality must be interpreted with caution here given the relatively small size of our sample. Given the strength of the finding on functional form, we continue with the linear form but present cluster robust standard errors.

**Table 7.5 Diagnostics of the level model of the absence rates**

Tests	Level Model	P-value	Hypothesis	Accept/ Reject
<b>Functional Form</b>	F(3,151)=1.05	0.373	Ho: Linear relationship	Accept H <sub>0</sub>
<b>Normality</b>	CHSQ(1)= 6.36	0.042	Ho: Normality in residuals	Reject H <sub>0</sub>
<b>Heteroscedasticity</b>	F(1,156)=9.27	0.003	Ho: Homoscedasticity	Reject H <sub>0</sub>

We summarise the results in Table 7.6, the full print-out can be found in Appendix A7.3. The results suggest that EPIP treatment has an unexpectedly positive coefficient but it is not significant (although the P-value using the default standard error is significant at the 10% level).

**Table 7.6 Estimation of the absence rate model**

Variable	Linear Model Class 10- 10/11-12	P-value for the linear model 10- 10/11-12	P-value for the cluster robust standard errors
	dy/dx	P>   t	P>   t
Females	-0.078***	0.001	0.001
Student socio-economic status	0.262	0.007	0.113
Ethnicity	0.242*	0.008	0.055
Past attainment	-1.192*	0.158	0.065
EPIP school (Dummy)	1.314	0.138	0.125
EPIP treatment (dummy)	1.465	0.077	0.206
Prishtina school (dummy)	-0.009	0.642	0.745
School directors' years of experience	-0.023	0.612	0.588
Urban (dummy)	0.303	0.696	0.713
_cons	6.828	0.000	0.113
N=158			
Adj. R squared = 0.37			
F(9, 148)=5.28			
Prob>F=0.00			

Note: Significant at \*\*\*1%, \*\*5% and \*10% for the cluster robust standard errors.

The results from the OLS estimation suggests that the female, ethnicity and past attainment variables are significant for cluster robust standard errors, although the latter two only at the 10% level. These results have the expected coefficient signs. As the percentage of females in the class goes up by one percentage point the absence rate decreases by 0.08 percentage points. For ethnicity, as the percentage of ethnic minority students in the class goes up by one percentage point the absence rate increases by 0.24 percentage points. The estimated effect of past attainment is larger. As the percentage of those achieving ‘excellent’ and ‘very good’ attainment in the class goes up by one percentage point the absence rate decreases by 1.19 percentage points. In addition the student socio-economic status is significant at the 1% level and has the expected sign with default standard errors but not with cluster robust standard errors.

#### **7.4.5      *Fixed effects model***

We have undertaken fixed effects estimation for the absence rate. Since we have a lagged variable in our model there are only a maximum of two years of data for each class cohort. Year dummy variables are now included in addition to those variables reported in Table 7.6, to reduce the possibility of cross-sectional dependence (time invariant variables were of course excluded). Only the time variables were significant in the estimates (whether we considered default or cluster robust standard errors). The results are reported in Appendix A7.4.1 and A7.4.2.

### **7.5 Features of the modelling of student attainment with specific focus on Kosovo**

As already mentioned in the introduction, one of the objectives of the school development grant programme was to stimulate higher attainment in the targeted schools. However, the objective of raising student attainment needs clarification given that there are different attainment levels that students may or may not achieve. As the programme selection criteria were based on family poverty and ethnicity one assumption may be that the students targeted were disproportionately from the marginalized groups and as such may have lower attainment levels, however this may not always be the case. Since there was no definition provided as to which attainment level(s) the intervention sought to target the programme's impact on attainment in secondary schools in Kosovo was initially planned to be assessed through two measures: student grades and exit exams. This type of research is the first of this kind in addressing the determinants of attainment in secondary schools in Kosovo.

Students' grades are the internal evaluation of the teachers determined at the end of the year, based on the student performance throughout the year. Students can reach five levels of attainment and are graded as follows: fail (grade 1), satisfactory (grade 2), good (grade 3), very good (grade 4) and excellent (grade 5). These grades are not normalised across classes, schools or time and hence the attraction of using curriculum-based external exit exam data. As we have explained in section 5.4, the exit exams (State Matura) in Kosovo are organized at the last year of the secondary school and those successful obtain a high school diploma. The exit exams are organized for three subjects: Albanian language, Mathematics and English language for all the graduates and these lead to 60% of the 100 points of the exit

exam. The rest of the 40% of the points is from the elective subjects which differ between students. There are two streams within gymnasiums which are known as: ‘natural sciences’ and ‘social sciences’, the vocational schools also have two streams and there are also art schools. Initially it was intended to utilize the exit exam results for the final year sample. However, even though the data for the examination grading at individual level was made available, the Ministry of Education, Science and Technology did not provide us with the coding to enable individuals to be linked to their schools. Hence, the author was unable to carry out this part of the investigation. As considered above, there is a problem in utilising internal student grades due to possible variation of the grading criteria across teachers and time. Such variation may be the case among schools however for the purpose of our research we are comparing year to year attainment instead of comparing between schools and as such this may lessen the teacher bias when assessing the students.

Before defining the attainment variable we examine how to organize the different levels of attainment data. There are five attainment levels, as mentioned above, and these are divided into two categories for reasons discussed below: high and low attainment level. Table below presents how attainment variable is constructed.

**Table 7.7 Defining attainment variable**

Excellent	Very good	Good	Satisfactory	Fail	Total
30%	30%	10%	20%	10%	100%
21%	23%	12%	24%	20%	100%
25%	17%	21%	20%	18%	100%

The attainment variable was only available as a discrete variable, not a continuous. Indeed, the awarding of a grade does not relate directly to a single continuous mark. For instance, the satisfactory grade is for students that may have failed one or two subjects and are subject to further examinations, conducted before the start of the year, the result of which may be fail or pass to the following year. The unsatisfactory student attainment is the group of the students that have not reached even that minimum level and as such may not continue further



but will have to repeat the same schooling year. In addition we had no information about the distribution of students within grades. Given this it did not seem appropriate to use an average grade, which assumes a continuous underlying distribution. Also, although no specific attainment criteria were set by the programme as discussed above, it can be argued that improvement in terms lowering the percentage of students obtaining low grades is important in the context of a programme concentrating on disadvantaged students. Thus we defined a low attainment level by combine the ‘satisfactory’ and ‘unsatisfactory’ level student grades. The class mean for the low attainment variable is 32 percent and the standard deviation is 17. For this variable we have five observations which have the value of 0. Since this is a small number of observations that are censored (less than 2% of the sample) we considered Tobit estimation inappropriate and proceeded with Ordinary Least Squares estimation.

Since there may also be a expectation for increasing high attainment we also carry out a separate estimations for high attainment for completeness. This is defined as the percentage of students achieving ‘excellent’ or ‘very good’ grades. The class mean of the high attainment level variable is 43 percent and the standard deviation is 18. For the high achievement there is no top censoring since none of the observations reach close to 100%.

## **7.6 Initial model specification**

As considered in section 2.5, the educational production function has been more referred to than human capital theory when considering participation. The discussion of this model in section 2.4 and 2.5 considered the importance of family inputs and peer effects and that these may be correlated with ethnicity and poverty indicators in Kosovo. In addition it noted there could be variations in aspects of school quality linked to both rural areas and too rapidly increasing numbers in the capital city. Empirical evidence suggests that community, school and student characteristics impact on student attainment (Campbell, 2004). Steele et al’s., (2007) study of student attainment utilized school characteristics such as: size, type and pupil-teacher ratio, pupil characteristics: age, gender, ethnicity and eligibility for free school meals together with some additional data from the Census on socio-economic characteristics of the neighbourhood and political control of the local authority. Angrist and Levy (1999)

utilized school characteristics data including class size and religious affiliation of the school and student characteristics such as: school level socio-economic index, and ethnicity. Other research has emphasised family characteristics which may impact on attainment (Levacic et al., 2005). For the purpose of our research we present the list of variables used in our model specification in Table 7.8 including variable descriptions and the anticipated sign of the coefficient. However, it should be noted that no data was available for family characteristics such as parents' education.

**Table 7.8 Variable names, description and anticipated signs of the coefficients**

<b>Variable Name and Acronym</b>	<b>Variable Level</b>	<b>Variable Description</b>	<b>Anticipated sign of AEVG</b>	<b>Anticipated sign of ASF</b>
<b>Dependent Variables</b>				
Attainment (Excellent, Very Good ) (AEVG)	Class cohort level	% of students achieving high grades.		
Attainment (Satisfactory, Unsatisfactory) (ASF)	Class cohort level	% of students achieving low grades		
<b>Independent Variables</b>				
Females (femalepc)	Class cohort level	% of females	+	–
Student socio-economic status (povertyp)	Class cohort level	% of students whose households are supported under the Social Assistance Scheme	–	+
Ethnicity (nonAlb)	Class cohort level	% who are not Albanian	–	+
Absence Rate (AbR)	Class cohort level	% of absences	–	+
Repeat Students (Repeat)	Class cohort level	% of students in class who are repeating the year	–	–
EPIP School (Dummy) (ecdummy)	School level	1 = EPIP school , 0 = if not	–	+
Treatment (EPIPActive)	School level	1 = EPIP is in operation in EPIP school 0 = if not	+	–

Prishtina schools (dummy) (prdummy)	School level	1 = Prishtina 0 = other	?	?
Urban/Rural (urbrur_1)	Municipality level	1= urban 0= rural	+	–
School Directors Years of Experience (myofex)	School level	School Director's Years of experience in 2007 (number)	+	–
Teachers' Education (TeUHPS)	Municipality level	% of teachers who graduated from university or high pedagogical school	+	–
Teachers' Years of Experience (extavg)	Municipality level	Teacher Average Years of experience in the municipality in 2007	+	–

**Females** – is defined as the percentage of females in the class cohort. Recent empirical evidence suggests that females do better than males in terms of achievement, especially in reading, though this is not universally the case for mathematics where relative performance differs across countries (Marks, 2008). The hypothesis behind this is that girls put more effort in school which leads to better performance compared to boys.

**Student socio-economic status** – is defined as in section 6.4. A meta-analysis which reviewed the relationship between students' low socio-economic status and attainment suggests that there is a medium to strong negative relation between these two (Sirin 2005). The hypothesis behind this is that students who have low socio-economic status parents are more likely not to have parents who have completed higher education levels and this may lead to students investing less effort in schooling than the other students. Also parents from disadvantaged backgrounds such as those with low socio-economic status may have lower expectations for their children to be high achievers and these students may have less confidence in their own ability. Similarly, if innate ability is genetically determined less able parents with low socio-economic status are more likely to have less able children. As such class cohorts with a high proportion of poor students may lead to lower attainment.

**Ethnicity** – is defined as a percentage of class cohorts of other than Albanian ethnicity. Some empirical evidence suggests that ethnicity is not directly related to attainment; however it has a direct relationship with low income and as such may indirectly affect attainment (Abbott et al., 2001). Other research suggests that minority ethnicity may be related to attainment. In the UK for example, after taking into account low socio-economic status, children from other

ethnic groups do better than the white British children, apart from Black Caribbean students who disproportionately underachieve (Johnson and Kossykh, 2008). Ethnicity is likely to affect attainment through cultural norms, though the specific relationship between an ethnic group and average attainment differs from country to country. The categories of minority ethnic groups for Kosovo are the Roma, Ashkalia and Egyptian communities which are the most marginalized groups according to various criteria. We do not include the Serbian ethnic group since they did not participate in this research. The hypothesis is that class cohorts with a high proportion of the non-Albanian ethnic groups perform worse than the other class cohorts. Ethnicity is included as an important control as having a high percentage of these ethnic groups in a school was one of the selection criteria of the EPIP programme.

**Absence Rate** – is defined as the percentage of absences for the class cohort taking into account the number of students and lessons. The hypothesis is that students from class cohorts with higher absence rates tend to do worse than the group who attend more regularly. Attainment may be hypothesised to impact on current student attendance; however as discussed in the section 7.4.1 this may be a lagged relationship which lessens possible endogeneity. An approach to estimation given possible endogeneity is using instrumental variables, however for this research no suitable IV could be identified for the absence rate. The absence rate variable is included in the model even though we acknowledge a possible endogeneity.

**Repeat students** – is defined as the percentage of the class cohort that did not reach the next education level in the previous school year due to their low attainment. The hypothesis is that class cohorts with more repeat students from the previous year will do less well in terms of the proportion in the high attainment category as well as in the low attainment category, other things being equal, than the other class cohorts. Even though there are no specific limitations on what level of achievement repeat students can achieve in Kosovo this category clearly consists mainly of low-achieving students. If the student is a repeat student due to other reasons such as medical, then their schools usually accommodate them by letting them take their exams at the end of the year instead of requiring them to repeat the whole academic year.

**EPIP School (dummy)** – This variable is defined in section 6.2. By this variable we are able to distinguish between which schools selected into the EPIP programme and those schools

which did not take part in the programme. The EPIP school variable expected coefficient sign is negative for high achievement but positive for low achievement. The variable is a control variable for other factors which may be associated for selection in the programme that are not otherwise in the model.

**Treatment (Dummy)** – This variable is also defined in detail in section 6.2. The treatment variable, captured in a dummy, is equal to 1 if the school took part in the EPIP programme and the programme was operational in that year. The expected sign is positive for high achievement and negative for low achievement.

**Prishtina Schools** – As we have noted before this variable captures the effect that schools in the capital city were subject to different forces. The expected coefficient sign is undetermined since it may be affected by different factors. A possible hypothesis is that the best resources in terms of human capital, buildings and resources may be available disproportionately in the main city and as such this may increase attainment levels. However, as noted in the previous section on attendance, the city's schools have seen an influx from internal migration which may have led to overcrowding and as a result this may lead to lower quality teaching and less learning time per student which can impact on the final student attainment levels.

**Urban/Rural** - this variable is defined in detail in section 6.2. The hypothesis behind this variable is that schools in urban areas may perform better than the schools in rural areas bearing in mind that most of the resources are first directed to urban areas rather than rural areas. Also there are more job opportunities in urban areas where higher levels education are required, which may motivate students to do better in schools.

**School Director's Years of Experience** – This variable is a proxy for school management capacity. The hypothesis is that better management capacity may improve the school environment and as such motivate students to perform better.

**Teacher education** – is defined as in section 6.4. The hypothesis is that teachers with more education are better teachers and as such perform better in classes which leads to more interesting classes and better learning by the students.

**Teachers' years of experience** - This variable is expressed as an average of teachers' experience in the municipality. Some research suggests students learn more from teachers with more experience than they do from less experienced teachers (NCES, 2000). More

experienced teachers' create better a learning environment for students which leads to student motivation to achieve higher attainment levels.

The initial linear model specifications are as follows:

$$AEVG = S_0 + S_2 femalepc + S_3 povertyp + S_4 ethnicg + S_5 AbR + S_6 Repeat + S_7 ecdummy + S_8 EPIPActive + S_9 prdummy + S_{10} urbrur\_1 + S_{11} myofex + S_{12} TeUHPS + S_{13} extavg + V \quad (7.3)$$

and

$$ASF = S_0 + S_2 femalepc + S_3 povertyp + S_4 ethnicg + S_5 AbR + S_6 Repeat + S_7 ecdummy + S_8 EPIPActive + S_9 prdummy + S_{10} urbrur\_1 + S_{11} myofex + S_{12} TeUHPS + S_{13} extavg + V \quad (7.4)$$

## 7.7 Estimation of the attainment models (high attainment and low attainment)

As explained above, we estimate two levels of attainment in this evaluation of EPIP2, the percentages achieving high attainment and low attainment, using regression analysis which is the most common method used when working with attainment data.

### 7.7.1 *Estimation of the high attainment model*

We start with the high attainment group and present results with diagnostics in Table 7.9. We note that many of the studies of attainment do not report any diagnostics. We examine the diagnostic statistics to test the CNLRM assumptions and we present the initial linear and the most preferred results in Table 7.9. The initial diagnostic statistics of the estimation for the high attainment of the linear model suggest that we can reject the null hypotheses of homoscedasticity at the 5% level, although not at the 1% level. We fail to reject the null hypothesis of normality at the 10% level, though the latter statistic on normality must be interpreted with caution here given the relatively small size of our sample. The Ramsey RESET test statistic suggests also problems with the functional form. To address the issue of the incorrect functional form we have investigated other forms such as: semi-log (log-linear),

log-log and semi-log (linear-log) forms, and including squared terms for the continuous variables. In general, the results did not vary between these different estimations apart for the semi-log (log-linear) model which has better diagnostics. The semi-log (log-linear) model diagnostics suggest that we fail to reject the null hypothesis on the functional form, but not that normality can be rejected at the 10% level and heteroscedasticity at the 5% level. We report cluster robust P-values given the possible heteroscedasticity, but note that these are a large sample technique.

Both the estimates for the linear and log-linear model for the high attainment group are reported in Table 7.9, but we proceed with the interpretation with the log-linear model which is the preferred model given the better diagnostics. However, it should be noted that the estimated signs of the variables were the same in the linear estimation as in the log-linear and the significant variables were also similar. In both these estimations there was no evidence of a significant EPIP treatment effect.

**Table 7.9 Estimates of the level and log-linear models for the high attainment**

	Linear Model			Log-linear Model (Preferred Model)		
	Coefficient	P-value	P-value robust standard errors	Coefficient	P-value	P-value robust standard errors
	dy/dx	P>   t	P>   t	dy/dx	P>   t	P>   t
Females	0.594***	0.000	0.000	0.016***	0.000	0.000
Student socio-economic status	1.010***	0.001	0.008	0.146	0.058	0.081
Ethnicity	-0.394	0.162	0.115	-0.009	0.144	0.110
Absence Rate	-0.231	0.377	0.562	0.001	0.954	0.962
Repeat students	-1.023***	0.000	0.000	-0.023***	0.000	0.000
EPIP school (Dummy)	-3.742*	0.069	0.051	-0.054	0.273	0.240
EPIP treatment (dummy)	1.048	0.650	0.645	0.241	0.666	0.655
Prishtina school (dummy)	-4.654**	0.040	0.048	-0.073	0.184	0.185
Urban/Rural (dummy)	5.613***	0.009	0.003	0.106**	0.040	0.033
School directors' years of experience	-0.454***	0.001	0.001	-0.133***	0.000	0.000
Teacher Education (University and High Pedagogical School)	-0.106	0.606	0.616	-0.004	0.356	0.396
Teacher Years of Experience	1.794***	0.002	0.000	0.054***	0.000	0.000
_cons	15.632	0.452	0.452	3.023	0.000	0.000
	N=260, R squared = 0.50, F(12,247)= 22.71 Prob>F==0.000			N=260, R squared = 0.53, F(12,247)= 23.64 Prob>F=0.000		

Functional Form	F (3,254) = 2.89 Prob>F==0.0359	F (3,254) = 0.85 Prob>F=0.468
Normality	CHSQ (1) = 4.75 Prob> ==0.093	CHSQ (1) = 5.02 Prob> =0.081
Heteroscedasticity	F (1,266) = 4.02 Prob>F==0.046	F (1,258) = 8.49 Prob>F=0.039

Note: Significant at \*\*\*1%, \*\*5% and \*10% with cluster robust standard errors.

We consider the results, paying attention to the significant variables and our variable of interest. The high attainment model generates five significant variables: female, repeat students, urban/rural variable, school director's years of experience and teachers' years of experience, but first we discuss our variable of interest. The EPIP treatment variable has the expected positive sign, but is insignificant, i.e. this investigation does not provide any evidence that the programme increases high attainment.

The female variable has a positive sign as expected and it is significant at the 1% level and suggests that on average if the percentage of females is higher by 1 percentage point in the class cohort the attainment rate of the students with excellent and very good grades will increase by 1.6 percent. The repeat students' variable is significant at the 1% level and suggests that on average if the percentage of repeat students in the class increases by one percentage point the high attainment group will decrease by 2.3 percent. The urban/rural variable is significant at the 5% level and suggests that if the school is based in urban area the attainment of the students with excellent and very good grades will increase by 11.23<sup>5</sup> percent. The School director's years of experience variable is significant; however it has an unexpected negative sign. Teachers' years of experience is significant at the 1% level and suggests that on average if the teachers' years of experience increases by one year the high attainment percentage will increase by 5.4 percent.

### 7.7.2 *Estimation of the low attainment model*

We continue our analysis with the estimation of the low attainment group as the dependent variable. The initial estimation is of a linear model, the results of which are presented in Table 7.10. The diagnostics suggest we reject the null hypotheses of correct functional form at the 5% significance level and homoscedasticity at the 1% level. There is insufficient evidence to reject the null hypothesis of normality. We explored other functional forms such

<sup>5</sup> We cannot take the direct percentage change interpretation here as this is an approximation that applies only to marginal changes. The percentage change for a dummy variable is obtained by  $(e^{0.106}-1)*100$ .



as: semi-log (linear-log) and squared terms for the continuous variables. Log-log and semi-log (log-linear) functional forms could not be investigated because of the 0 value for a few observations of the dependent variable. The preferred model for the low attainment model is the squared terms model which had improved diagnostics and this is also presented in Table 7.10.

**Table 7.10 Estimation linear and non-linear model for the low attainment**

	Linear model for the low attainment	P-value for the linear model	Non-linear model for the low attainment	P-value for the non-linear model
	dy/dx	P>   t	dy/dx	P>   t
Females	-0.433***	0.000	-0.548***	0.008
Females squared			0.002	0.459
Student socio-economic status	-1.027***	0.003	-1.309	0.128
Student socio-economic status squared			0.049	0.407
Ethnicity	0.252	0.407	-0.883	0.168
Ethnicity squared			0.083**	0.040
Absence Rate	-0.071	0.800	-0.075	0.918
Absence Rate squared			-0.016	0.633
Repeat students	1.248***	0.000	3.370***	0.000
Repeat students squared			-0.134***	0.000
EPIP school (Dummy)	-1.264	0.569	-0.861	0.687
EPIP treatment (dummy)	2.584	0.301	0.829	0.729
Prishtina school (dummy)	3.312	0.201	5.801**	0.027
Urban/Rural (dummy)	-1.580	0.491	-1.257	0.582
School directors' years of experience	0.138	0.330	0.066	0.631
Teacher Education (University and High Pedagogical School)	-0.439**	0.049	-0.676***	0.003
Teacher Years of Experience	0.603	0.341	-0.277	0.653
_cons	94.873	0.000	114.340	0.000
N=260, R squared = 0.40, F(17,247)= 13.76	N=260, R squared = 0.40, F(17,247)= 13.76 Prob>F=0.000		N=260, R squared =0.47 F(17,242)=12.73 Prob>F=0.000	
Functional Form	F (3,244) = 3.61 Prob>F=0.014		F (3,239) = 1.80 Prob>F=0.147	
Normality	CHSQ (1) = 0.23 Prob> =0.891		CHSQ (1) = 1.77 Prob> =0.411	
Heteroscedasticity	F (1,258) = 3.06 Prob>F=0.081		F (1,258) = 1.63 Prob>F=0.202	

Note: Significant at \*\*\*1%, \*\*5% and \*10%.

Before we discuss further the other variables we note that our variable of interest, the EPIP treatment variable, is insignificant and has an unexpected positive sign in both specifications. In what follows we discuss the significant variables in the preferred model. We start with the

interpretation of repeat students, where the single and square terms which are both individually and jointly significant ( $F(2,242) = 36.94, P=0.000$ ). Wooldridge (2002) suggests that the interpretation of squared terms is not straightforward and we cannot examine the effects of the individual variables as *ceteris paribus* is impossible. The first term is positive and the second term is negative which suggests that if the percentage of repeat students in the class increases the percentage of low attainment increases but at a decreasing rate. For illustration, if the repeat rate is 1% then the low attainment increases by 3.2 percentage points but if the repeat rate is 3% then it increases by 8.9 percentage points. The turning point is 12.6 which is higher than our data range.

We have also undertaken an F test on the other variables where the single and squared terms are included in case they are significant, since high multicollinearity may mean they are individually insignificant but jointly significant: females, ethnicity, poverty and absence rate. The F test suggests that the female and ethnicity variables are jointly significant, though the latter is significant only at the 10% level. The poverty and absence rate variables are jointly insignificant. We continue further with interpretation of the female and ethnicity variables. The single term female is significant whereas female squared is not significant, however they are jointly significant ( $F(2, 242) = 21.63, P=0.000$ ). The first term is negative and the second term is positive which suggests that if the percentage of females in the class decreases the percentage of the low attainment also decreases but at an decreasing rate, although the effect of the squared term is very minor as the coefficient is very small. For illustration, if the female percentage is 50% then the effect of the combined terms is to reduce low attainment by 22.2 percentage points, but if the female percentage is 75% the effect of the combined terms is to reduce by 32.8 percentage point. The turning point is 137 which is higher than the possible range.

Only the squared term of the ethnicity variables is individually significant (at the 5% level). They are jointly significant at the 10% level ( $F(2, 24) = 2.26, P=0.07$ ). The first term is negative and the second term is positive which suggests that if the percentage of students from minority ethnic groups in the class increases the percentage in the low attainment group contrary to expectations, at first decreases but at an decreasing rate. The turning point is 5.3

which suggest that after this point the low attainment increases. For illustration, if the ethnicity percentage is 1% then the effect on low attainment is a decrease by 0.16 of a percentage point whereas if the ethnicity percentage is 3% then the low attainment decreases by 0.6 percentage points.

The Prishtina school variable has a positive sign and it is significant at the 5% level which suggests that if schools are in Prishtina, low attainment increases by 5.8 percentage points. The teacher education variable has the expected negative sign and is significant at the 1% significance level and suggests that on average if teacher education is higher by 1 percentage point the low attainment will decrease by 0.67 percentage points.

### **7.7.3      *Fixed Effect estimations***

Fixed effects estimations were undertaken for both high and low attainment groups. Unlike the attendance estimation there are no lagged values and thus the maximum number of years in our data set is three. We included year dummy variables in addition to the variables included in Tables 7.9 and 7.10 to reduce the possibility of cross-sectional dependence. The time invariant variables such as: EPIP school (dummy), Prishtina schools (dummy), urban/rural, school directors years of experience, teachers' education, and teacher's years of experience are excluded.

We interpret first the high attainment estimation, which is given in Table 7.11 and in Appendix A7.5.3. The overall F statistic is highly significant. However the EPIP treatment variable is once again insignificant. The estimate suggests that percentage achieving a higher grade was higher in the third year (schools overall, not just those participating in EPIP). Several of the other variables are significant, and usually, but not always, have the expected sign. Female, is significant at 5% percent (at 10% with default standard errors) and as the percentage of female students increases by one percent in the class cohort the estimated effect is of a 0.2 of a percentage point increase in those achieving high attainment. The repeat rate is also significant at 5% and suggests a 0.3 percentage point decline in the high achievers with every one percentage point increase those repeating. However, the positive sign on the absence rate, which is highly significant, is unexpected and unexplainable.

**Table 7.11 Fixed effects estimation for high attainment**

Variable	Fixed effects for the high attainment	P-value for default standard errors	P-value for cluster robust standard errors
	dy/dx	P>   t	P>   t
Females	0.188**	0.068	0.044
Socio-economic status	-0.552	0.232	0.202
Ethnicity	-0.862	0.058	0.071
Absence Rate	2.033***	0.000	0.002
Repeat Students	-0.347**	0.019	0.024
EPIP School (Treatment)	-0.663	0.745	0.797
Year 2	2.095	0.08	0.197
Year 3	2.066**	0.063	0.037
Cons	32.014	0.000	0.000
	No: 292		
	F (8,148) = 4.81 Prob > F = 0.000		

Note: Significant \*\*\*1%, \*\*5% and 10% with cluster robust standard errors

For the percentage achieving low attainment, the results are in Table 7.11 and Appendix A7.5.4. The EPIP treatment variable is once again insignificant, with again the third year variable being significant, here negative, again suggesting performance was better in schools overall in this year. Again the absence rate is significant and has an unexpected coefficient sign. If the repeat variable goes up by one percentage point low attainment records a slight increase by half a percentage point.

**Table 7.12 Fixed effects estimation for low attainment**

Variable	Fixed effects for the low attainment	P-value for default standard errors	P-value for cluster robust standard errors
	dy/dx	P>   t	P>   t
Females	-0.172	0.179	0.273
Socio-economic status	0.546	0.344	0.500

Ethnicity	1.198	0.035	0.065
Absence Rate	-1.823**	0.002	0.026
Repeat Students	0.546**	0.003	0.017
EPIP School (Treatment)	2.760	0.279	0.350
Year 2	-1.364	0.361	0.425
Year 3	-3.585**	0.010	0.018
Cons	39.284	0.000	0.000
	No: 292		
	F (8,148) = 4.22 Prob > F = 0.000		

Note: Significant at \*\*\*1%, \*\*5% and 10% with cluster robust standard errors.

## 7.8 Conclusion

Given the data, specification and estimation problems noted above these results for the impact of EPIP on student attendance and attainment should be viewed with caution. The only indication that we have of a positive impact of the school grants on student attendance is from the paired-t test which suggested the absence rates have decreased in the treatment group, but increased in the comparison group. Having in mind the limitations of such a technique, in that it does not keep other factors constant and given that we did not have a randomised experimental design, this at best only gives only a weak indication of the impact of school grants on student attendance. We did not find evidence of a favourable impact when using multivariate analysis. One notable addition is the introduction of past-attainment into the model which lessens the possible endogeneity and is a novelty for this type of research. It is also noted that the results are largely consistent between the different models. Finally, we have also utilized a fixed effect model which once again confirmed the absence of an EPIP treatment effect on attendance. We also estimated the impact of EPIP on the incidence of two categories of attainment: high and low. For the purpose of this estimation we utilized regression analysis and fixed effects model. The results again did not provide any support for the hypothesis that EPIP treatment raised student attainment. However, as noted above, our analysis may to some extent be hindered by the quality of data available to us and by the difficulties in dealing with the (possible) endogeneity problem.

## CHAPTER 8 CONCLUSIONS

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## **8.1 Introduction**

As explained in the Preface, the main objectives of this thesis were to (i) critically review the appropriateness of the current evaluation strategies of education policy initiatives in developing economies (ii) examine the extent of pupil dropout, poor attendance and low attainment in Kosovo, (iii) analyse the determinants of pupil dropout, attendance and low attainment and how are they affected by policy initiatives and (iv) examine the implications of the answers to the above questions for the reform of education policies in developing economies and the evaluation of policy initiatives. The key hypothesis behind this policy initiative evaluation, which is based on measurable indicators set out by the World Bank, is that development grants given to schools impact on dropout, attendance and attainment rates for the better and as a result lead to an improved quality of education. The aims of this chapter are to bring the main findings of our research together; address data issues related to education policy making, educational research and other related areas in Kosovo and develop policy proposals. These findings will also have some relevance to the development of evaluation strategies for this kind of policy initiatives in other developing countries. The empirical investigation presented in the previous chapters has emphasised the difficulties encountered in undertaking this type of research. Many of these difficulties were expected, although not to the degree identified. In this chapter we also develop policy proposals that address such difficulties, and while the context of this discussion concerns the evaluation of policy initiatives in Kosovo in terms of student dropout, attendance and attainment, these proposals have wider relevance for future evaluations both in Kosovo and elsewhere in transition and developing economies.

This chapter is organized as follows. In section 8.2 we start with the contextual, theoretical and methodological framework for this investigation, section 8.3 discusses the main findings of the thesis focusing on each of the research questions specified above. In section 8.4 we identify the key contributions of our research to knowledge: discussing separately the contributions made to theory, empirics and methodology. This is followed in section 8.5 with a review of the main limitations of our research and possible strategies that may improve existing practice. In section 8.6 we continue with a discussion of the policy implications of this research, taking into account the context in Kosovo, and finally in section 8.7 we

conclude our discussion on the impact of school development grants on student dropout, attendance and attainment rates.

## **8.2 Contextual, theoretical and methodological framework of our research**

The political developments in Kosovo during the 1990s massively affected its education system. The main objective of the education system at that period of time was survival, not achieving progress in line with other Western Balkan countries. After the post-conflict emergency phase was over the main focus of policy makers was developing policies to reconstruct the formal education system. This period of transition has had a major impact on the education system in Kosovo and more specifically on the quality of education provided (OECD, 2001).

The quality of education can be defined and measured differently by various stakeholders in the education field. To improve the quality of education in Kosovo large foreign aid and government subsidies were given, impacting both on the demand (from students) and on supply (by the school) sides. As mentioned in the Preface, one of the perceived key contributors to improving the quality of education in Kosovo were the World Bank's initiatives which focused on improving the supply side, mainly by aiming to improve performance such as lower dropout and higher attendance and attainment through its Education Participation Improvement Programme (EPIP). However, even though major funding was invested in the quality of education through this Programme, little work was undertaken to measure the effectiveness of this intervention.

The aim of the research reported in this thesis was to investigate the impact of EPIP school grants on student dropout, attendance, and attainment in Kosovo. The main concern was to critically evaluate the theory and evidence concerning the impact of targeted assistance to schools on their pupils' dropout, attendance and attainment, and from that develop and estimate impact evaluation models. The original intention was to consider all assisted schools, but because of severe data problems, the research had to focus on evaluating the impact of the support on the performance of secondary schools. In undertaking an impact evaluation that has utilized econometric analyses, this research is the first of its kind in the



education field in Kosovo. The World Bank has implemented similar policy initiatives throughout the world and we have taken a study of Cambodia, based on such an intervention, as the key reference for this current research. In applying their broad approach to the Kosovar context their methodology has been refined extensively with, in particular, a wider, more appropriate data set and more sophisticated econometric methods being employed. In view of the theoretical underpinnings the author initially analysed educational decision-making from the perspective of the economic, sociologic and psychological theories. However, for the purpose of this research the focus remains on economic theories.

Theoretical approaches to educational decisions emphasise the importance of economic factors, more specifically particular developments of the orthodox economic theory such the human capital and educational production function approaches. Human capital refers to the skills and knowledge of a person and is usually defined through three components: innate ability, qualifications and knowledge and skills that are acquired through education and training. In addition we have utilized the theory of the firm to analyse production within education providers. This approach views schooling as broadly similar to a conventional production process and develops an educational production function. More specifically, schools are viewed as using inputs (teachers, school infrastructure etc.) to achieve learning outcomes, but the students themselves are also regard as heterogeneous inputs that are affected by family and peer effects (Belfield, 2000). It was concluded that the variables and expected signs under the two economic theories are broadly similar, even though human capital theory is referred to more in the literature on continuation and absence rates and the education production function more often in the context of student performance. Suitable empirical counterparts to the theoretical concepts in the Kosovar context are discussed, some of which are likely to be applicable more generally in developing economies.

In addition the theory of evaluation of policy initiatives is reviewed. The existing literature describes comprehensive evaluation as a process which includes the following elements: monitoring, operational or process evaluation and impact evaluation. There is a vast array of categorisations used in the evaluation of the policy initiatives including qualitative, quantitative, quasi experimental, theory-based approaches, research synthesis, and economic

evaluation techniques (Magenta Book, 2003). This thesis is concerned with an impact evaluation. Fundamental to an impact evaluation is determining the ‘counterfactual’ of the intervention programme by seeking to hold other factors constant. Counterfactual deals with questions of what would have happened if the intervention did not happen and tries to establish what changes would have occurred anyway, regardless of the programme’s intervention.

EPIP was not set up as an experiment, which is where participants are randomly selected from the population and then randomly assigned to treatment and reference groups. Accordingly, a quasi-experimental approach using regression analysis was used in order to investigate the impact of school development grants on student dropout, attendance and attainment rates. Data were available for a ‘with and without treatment’ approach that enabled comparisons between the group that was targeted by the intervention with a comparison group of schools which had not been targeted. Pre-intervention data was also collected for all these schools allowing ‘before and after’ comparisons. For the purpose of our research the incidence of poverty and ethnicity of the school’s students were of importance as they were the two main criteria for the schools to be eligible for inclusion in the EPIP programme and so were important to include as controls in the analysis. They were also of importance from an economic theory viewpoint, as within the human capital approach these variables may be proxies for variables that affect the returns to education, while within the educational production function approach they are interpreted as proxies for family inputs and peer effects.

As discussed in section 4.4.2, one of the components of the EPIP programme was targeted at improving Kosovo’s Education Management Information System (EMIS). However, it was discovered that this system had not improved significantly by the time this research was being carried out. The EMIS still consists of only aggregate school data at municipality level and does not hold any class-based data. As a result, this research took a much greater amount of the time and effort to gather data than had initially been expected.

### **8.3 Main findings of the thesis**

In this section we summarise the main findings of our thesis.

#### **8.3.1 Review of previous evaluations of education policy initiatives in developing economies**

The critical review of previous studies suggested that evaluation strategies in developing countries such as Kosovo have yet to be fully developed. The impact evaluations of similar studies, in particular, the Cambodian study suggest that such evaluation strategies of education policy initiatives are limited in various respects. First, current evaluation strategies in developing countries failed to include all the elements of a comprehensive evaluation. In addition, similar studies in developing countries did not manage to utilize appropriate data sets as required for a more advanced empirical analysis. In addition, developing countries' governments have no capacity to conduct an appropriate impact evaluation. In particular, given the subject of this thesis, no policy initiative whatsoever has been evaluated in terms of measurable outcomes for a country such as Kosovo. More surprisingly, previous evaluations, conducted prior to this thesis under the aegis of the World Bank, have dealt only with the EPIP programme processes rather than any impact on the targeted policy outcomes. This failure can be attributed partly to the research designs and methods of these previous policy evaluations and partly to severe data problems which will be discussed in detail in the following sections.

#### **8.3.2 Data for evaluating education policy initiatives in Kosovo**

The author emphasized throughout the thesis and more in detail in section 5.4 the extent of the data problems encountered in this type of education policy initiatives in Kosovo. Despite the data limitations the author managed to generate the most comprehensive data on education policy initiatives for Kosovo yet available by integrating various sources of data. This illustrated major problems with data accuracy and interpretation, for instance with the attendance figures. However, as well as the impact analysis considered in more detail in the following three subsections, it enabled the presentation of descriptive statistics on dropout, attendance and attainment rates in different groups of schools that was not previously available, along with various student and school characteristics.

### **8.3.3 Impact of school development grants on student dropout**

The analysis of the impact of school development grants on student dropout, as with the other indicators discussed in the following sections, was initiated through extensive field research in schools, comprising of numerous school visits, and interviews with the main education stakeholders such as school directors and teachers in order to obtain the data. This allowed us to conduct an impact evaluation which starts to address the many issues neglected in previous evaluations in Kosovo. Our initial variable of interest was the student dropout rate; for the purpose of this research we have had to utilize a proxy, which is the continuation rate, as dropout data in Kosovo is incomplete and does not account for students that may have re-entered schooling or may have transferred to another school. We noted that there was a similar problem in the Cambodian study (Marshall, 2004) which had also used the continuation rate. The initial investigation of the descriptive data suggested that there are cases where a school's continuation rate reached over 100%; however such cases were identified and investigated and measures were taken to control for such schools. As expected the initial analysis suggested that the 'right schools' were targeted in terms of the criteria for selection, with schools without treatment having higher continuation rates to start with. We utilized regression analysis, specifically OLS, to estimate the impact of school development grants on continuation rates. Importantly, measures of poverty and ethnicity were included, since these were the criteria for inclusion in the programme. Our analysis of the impact of school development grants on continuation rates suggested school development grants may have had a marginally significant, positive impact on the continuation rates. The results suggested an improvement of 3.6 percentage points, however this conclusion is tentative as it was not confirmed by the estimation using a fixed effects panel method. Apart from our variable of specific interest there are other variables that were identified as having a significant effect on student dropout at compulsory level. The results suggest higher attainment can improve the continuation rate whereas higher levels of ethnicity can lower the rate. In addition, the higher level class cohorts (11-12), compared class cohorts 10-11, have improved continuation rates. At post compulsory level (12-13) the variable student socio-economic status has as significant positive effect. Impact of school development grants on student attendance

From the start, the analysis of the impact of school development grants on attendance was hindered by difficulties with attendance data in Kosovo. These difficulties were initially related to the completeness, consistency and reliability of the attendance data. We noted that some difficulties are also common in more developed countries, which to some extent explains the lack of this kind of educational research. There was great variation in attendance data across the school, from 0.25 - 25%, possibly due to differences in recording the attendance data. This study illustrates the methods appropriate to utilize when measuring the impact of school development grants on student attendance and can serve as an example for other similar policy initiative analysis in developing countries.

The initial descriptive analysis of the data supported our assertions that attendance data should be viewed with caution. Following previous practice, the analysis, having noted possible problems with the data, was initiated with a simple paired t-test and then followed by multivariate analysis. The results of the paired t-test suggested that in the schools that received the development grants the absence rates were decreasing, but we are aware of the limitations of this procedure which does not keep other factors constant and these results do not take into account that selection into the programme is expected by design to be correlated with the outcome on attendance. Having in mind the limitations of this technique, and given the programme was not set up with a randomised experimental design, at best these findings provide only a weak indication of a positive impact of school grants on student attendance.

Estimating the effect of student attendance also has the difficulty that it may be simultaneously determined with student performance, i.e. an endogenous relationship between the two variables is likely. The relationship between such variables is considered to be circular; pupils that do better in schooling are more likely to attend more classes and as a result have higher achievement levels (NAO, 2005). Surprisingly, this potentially endogenous relationship between attendance and attainment has been discussed only briefly in previous studies; none of these studies have undertaken a detailed investigation of this relationship. Two methods to address this problem were explored: instrumental variables and using a lagged relationship with the attainment variable as methods that may account for this potential problem.

Utilizing instrumental variables requires identifying variables that are correlated with performance, but not correlated with the error term in the model for attendance; in our case we identify teacher education and teacher years of experience as possible IVs. However, the check on the strength of our proposed instruments suggested that these were weak and thus it was not appropriate to continue further with this technique. However, we argued that it is likely to be the lag of the attainment variable that impacts on attendance, rather than current attainment, as typically assumed in the existing literature, since attainment is only confirmed in the Kosovar system with the award of an end-of-school year grade. The results of the lagged relationship of the attainment variable in the regression suggest that our policy variable has no impact of school development grants on student attendance. However, there are other significant variables that impact on absence rates. The results suggest that the female and past attainment variables have a positive effect while ethnicity has a negative effect. However, as noted above our analysis may to some extent be hindered by the quality of data available for this kind of analysis, as well the difficulties in dealing with a (possible) endogeneity problem.

#### **8.3.4 Impact of school development grants on student attainment**

The analysis of the impact of school development grants on student attainment was conducted for two categories: high attainment and low attainment. We have analysed attainment for both of these levels since there is no clarification in the project documentation as to whether these school development grants were aimed at low or high achieving students, or indeed both. A limitation of this research is the necessity of using internal grades to measure achievement, since there may be variations in the grading criteria across classes, teachers and time. However, we are comparing between years instead of between schools and as such this may reduce any problems associated with teacher bias. The results of our analysis of the determinants of the proportion of students achieving high and low attainment grades suggest that our variable of interest, the impact of school development grants, is not significant and hence this investigation does not provide any evidence that the programme improved student attainment. In regard to other student attainment determinants the following variables were significant for high attainment: female and urban/rural (positively),

and repeat students and school director's years of experience (negatively). For low attainment the significant variables were female and teacher education (negatively) and Prishtina school and repeat students (positively).

## **8.4 Contributions to knowledge**

This thesis contributes to knowledge in a number of aspects. This is the first Kosovar study that provides a theoretical framework to analyse educational decision-making and evaluate policy initiatives, critically reviews previous evaluations of policy initiatives, and utilizes econometric analysis to investigate the impact of school development grants on student dropout, attendance and attainment.

### **8.4.1      *Theoretical contribution to knowledge***

The examination of the theory of educational decision-making in the Kosovar context concluded that human capital theory, as conventionally applied to developed economies, may not be sufficient. A complementary line of orthodox economic theory that may add additional insights for evaluations of supply-side interventions (at the school level) is production function theory. Subsequently, empirical implications of the human capital and the education production function approaches are examined to inform the policy making. As such this research considers separately these two lines of the neoclassical theory and concludes that it is difficult to distinguish between these in practice as many variable/signs may be similar even though they have different interpretations. These theories were also used in considering appropriate empirical counterparts to the theoretical variables within the Kosovar context. This required background knowledge of the particular situation in developing our empirical model. Consideration of possible theoretical bases alongside the particulars of the situation in a country is arguably an improvement of the ad hoc selection of variables that has been a feature of previous impact evaluations in developing countries.

### **8.4.2      *Data contribution to knowledge***

The contribution to knowledge in data relies in that the author has managed to develop a comprehensive data set for Kosovo despite the, widely dispersed education data. As such the data set for this research was built by gathering various sources as indicated in section 5.4. This resulted in building the best available collated data set for these variables. Despite the

efforts this research suggests there are large-scale systematic under-reporting of absences, partly induced by the allocation of the resources across schools. Such tendency is confirmed by the Ministry of Finance in Kosovo (MFK) (2011), which emphasized the need for more transparency and credibility in the education statistics provided by schools. Subsequently, researchers should be very wary when using an education system data.

#### **8.4.3      *Methodological contribution to knowledge***

This is the first study in educational research in Kosovo that utilizes a quasi-experimental approach using regression analysis in order to investigate the impact of school development grants on student dropout, attendance and attainment rates. This policy initiative has utilized additional models/econometric techniques compared to the Cambodian study. As such, it can serve as an illustration of the methods to be employed for future evaluations of this type of policy initiative. The Cambodian study utilized regression analysis, more specifically Ordinary Least Squares, in the policy initiative evaluation; however we have extended this further by investigating the use of instrumental variables and fixed effects estimation. However, we have to note that the data limitations faced throughout our research means that our results need to be treated with caution, however they are illustrative of appropriate methods for this type of policy initiative analysis.

The Cambodian study did not have comparison (non-treatment) schools data, but in the research reported in this thesis the collection of data on each school separately by the author made it possible to do this in the estimations. Subsequently, a ‘with and without treatment’ approach was utilised that enabled comparisons between the quasi-experimental group which was targeted by the intervention with a comparison group of schools which had not been targeted.



Finally, this study can serve as an illustration of best-practice for the evaluation of other similar programmes in other developing countries. This study has utilized empirical analysis which is not often seen in the educational research of the developing countries. In particular for Kosovo the current evaluation strategies of the education policy initiatives have far only implemented process evaluations instead of impact evaluations. Apart from illustration of the different methods/techniques that can be used when conducting this type of policy initiative analysis, this study emphasises the need for appropriate data collection methods, lack of which may hinder the successful implementation of evaluation. This needs to be addressed at the programme design stage.

#### **8.4.4      *Empirical contribution to knowledge***

The author critically reviewed the previous policy evaluation of EPIP and concluded that they did not establish reliable evidence given the absence of the application of rigorous statistical methods that take account of the need for a counterfactual. We have also concluded that previous evaluations of EPIP have only been concerned in practice with assessing the process, procedures and implementation rather than measuring the impact of the programme. This study is one of the first educational research impact evaluations for a developing country such as Kosovo that employs sophisticated empirical analysis. Through econometric analysis, we came to a tentative conclusion that government or foreign aid spending on this type of supply-side policy may not lead necessarily to immediate, visible educational improvement. The results reported in this thesis suggest that apart from a possible modest improvement in the continuation rate, the EPIP intervention appears to have had little affect on the targeted outcome indicators.

#### **8.5 Limitations of the research and ideas for future research**

As was emphasised repeatedly, the above findings need to be considered with caution given the context of our research and the limitations faced in generating our empirical results. Data limitations have affected our research from the very beginning of our analysis. Below we discuss those limitations and also propose ideas for future research.

Initially, the lack of quantitative data at all levels of education reduced our sample size significantly and consequently we had to work with secondary school data only. The lack of a functioning Education Management Information System (EMIS) in Kosovo prevented the securing of a bigger sample for our analysis. The data collection was a very time consuming process which required the author to conduct 2-3 visits to each school in order to get usable data. The secondary school data were better than that for primary schools, but still had problems which surfaced throughout our analysis and in each sub-topic. Even though great efforts were made to collect accurate data, its quality was not up to the required level. As such it was not only lack of data that hindered our research but also its poor quality.

The initial analysis of the impact of school development grants on continuation rates suggested that this dependent variable in some schools reached over 100% which is clearly a problem with the data. We have undertaken an analysis of why continuation rates exceeded 100% in some schools and one possibility for future research would be a better measure that adjusts for transfer. When it comes to attendance the analysis suggested again that there are major data issues. One limitation which hindered our estimation of the impact of school development grants on student attendance was the lack of a strong instrument, given the possible endogenous relationship between attendance and attainment. Future research could implement such an analysis if better data becomes available, particularly over time which may allow stronger instrumentation using panel methods. Larger panel data sets are also likely to be useful in dealing with ‘missing variables’ that are constant or very slowly changing at school level, but cannot be kept constant when using cross-section analysis (and thus may lead to endogeneity in that approach).

When it comes to attainment data we have already mentioned that for the purpose of our research we have utilized teacher assessment and as such there may be teacher bias which can be considered as a limitation to our research even though we are not comparing attainment between schools but rather between years.

As we discuss above, the main limitations of this research come from the data limitations and as such we consider that one of the main priorities for education stakeholders is to develop policies that will improve data collection strategies and processes.

## **8.6 Policy Recommendations**

In this section we develop policy recommendations that follow from the discussion of the main findings. Even though evaluations are now considered in most policy initiatives as an integral part of the process, there are still major difficulties in setting clear evaluation processes in programmes in developing/transition countries. The main difficulty occurs in the design phase of the programme. While policy-makers attempt to achieve as much as possible given funding constraints they fail frequently to identify clearly what is realistically attainable from a specific policy initiative. The decision about what type of evaluation should be used, be it monitoring, operational and/or an impact evaluation, needs to be taken in the initial design phase of the initiative, as discussed in section 4.7. It has been argued that measuring cost effectiveness through an impact evaluation is usually likely to be the main concern, especially in countries with severe financial constraints such as Kosovo. When such decisions are made the process should have clear and realistic goals, indicators and targets (Khandkher et al., 2010). Deciding upon what type of evaluation will be carried out makes it much easier to conduct the evaluation once the programme has been completed. Once the type of evaluation is decided in the design phase then the appropriate data needs to be gathered and the nature of the later analyses decided. In the case of the World Bank's EPIP in Kosovo it is clear that the data collected as part of the Programme did not allow previous evaluations of this programme for an impact analysis to be conducted: hence their reliance only on an operational evaluation (World Bank, 2009).

Even though we acknowledge attempts by the government and foreign investors to tackle the more marginalized groups, there is still much room for improvement when designing and implementing policies. There is only limited evidence from our study that the monies spent on the EPIP programme improved educational outcomes, more specifically in reducing student dropout. It is important that funders, such as the World Bank, incorporate appropriate

outcome evaluations in the programmes to aid the better targeting and allocation of future grants.

### **8.6.1      *Data improvement strategies***

One of the major policy implications coming out from this policy initiative evaluation regarding data is the necessity of improving data collection practices. Throughout this research we have recognized a failure in data collection strategies at the national level. Data collection practices should be fully developed by an independent agency, in this case the Statistical Office of Kosovo, and also be backed up by law. However, this has still not yet been approved in Kosovo. It is necessary not only for the law to be approved, but also for it to be implemented fully. It must be acknowledged that a lack of financial and human capacity resources may hinder such implementation; hence the government needs to support the Statistical Office of Kosovo with more financial and political support. The current data gathering attempts are usually donor-funded, based on the specific needs of various separate programmes rather than being designed as part of a national strategy for monitoring and evaluating educational decision-making. The World Bank's attempt to revive EMIS has not proven successful in terms of procedures for data collection. In Kosovo, data collection and recording practices were not hindered significantly by a lack of funds. The necessary raw data were already collected by schools but the processed data is available only at the municipal level, which is unusable for an assessment of individual school performance. The data collection practices should also lead to an improvement in evaluators' access to raw data and also an improvement in consistency and reliability, both of which are questionable currently for most of the data provided. The Ministry of Education, Science and Technology is working towards improving the Education Management Information System (EMIS); however, this should become more of a priority and priorities should be decided about which data are of the utmost importance to be collected. It is necessary to decide upon priorities when collecting and analysing data and these should be based upon deciding what data are appropriate and useful for analysis, rather than just creating large and expensive completely new systems and processes. Better quality data will help not only in policy evaluation but also with other issues, e.g. identifying schools which are expanding rapidly.

Throughout this research we have also come to the conclusion that finding reliable education outcome indicators in Kosovo is challenging. There is a variation within and between schools as to how different indicators are measured and there are no unified measures. More specifically, for the purpose of our research, we have worked with dropout, attendance and attainment data and as such realized that each school has its own internal procedures on how to define and record dropout and absences. Such policies are influenced clearly by the requirements that the Ministry imposes upon schools. The Ministry utilizes such data to take punitive corrective action, especially towards the management of schools, instead of offering assistance to these schools to improve performance or checking that recording procedures are being applied appropriately. Such actions lead to dysfunctional effects in schools, especially in performance reporting. Therefore, in practice, there were schools that were highly motivated to under record dropout and absences in order to maintain a good relationship with the Ministry. The Ministry should develop clearer policies on dropout and absences in order to assist schools to improve their performance, instead of utilizing them for taking punitive actions.

## **8.7 Conclusion**

This thesis provided evidence about the impact of school development grants on student dropout, attendance and attainment in Kosovo. This research managed to identify shortcomings in the evaluation strategies utilized previously in Kosovo which are evident also in other developing countries. Despite its limitations, this study has concluded that school development grants have had a limited positive impact on student dropout, though no significant effects were found on student attendance and attainment. Notwithstanding that the World Bank has funded a large number of projects like the EPIP, the results of this current evaluation suggest that, at least for Kosovo, there is no indication that they have any major effects on the targeted outcomes. Hence, for any normal criteria they are unlikely to be cost-effective. However, there may be other effects, in addition to those usually emphasised in the Programme's objectives, such as encouraging parental and community involvement in schools and the developing of decision-making skills, which may still justify their funding and/or generate longer-term improvements in educational outcomes.

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# **THE IMPACT OF SCHOOL DEVELOPMENT GRANTS ON STUDENT DROPOUTS, ATTENDANCE AND ATTAINMENT WITH REFERENCE TO KOSOVO**

## **Appendix**

Nora TAFARSHIKU

A thesis submitted in partial fulfilment of the requirements of Staffordshire  
University for the degree of Doctor of Philosophy

May 2013



### Appendix A5.1 List of the Schools Participating in the Evaluation

School Number	Type (EPIP School/Non EPIP School)	School name	School profile	Municipality
1	EPIP School	Sami Frasheri	Gymnasium	Prishtina
2	EPIP School	Xhevdet Doda	Gymnasium	Prishtina
3	EPIP School	Eqrem Cabej	Gymnasium	Prishtina
4	EPIP School	H K Prishtina	Vocational	Prishtina
5	EPIP School	Aleksander Xhuvani	Gymnasium	Podujeva
6	EPIP School	Hasan Tahsini	Gymnasium	Obiliq
7	EPIP School	Jeta e Re	Gymnasium	Suhareka
8	EPIP School	Skender Luarasi	Gymnasium	Suhareka
9	EPIP School	Gjon Buzuku	Gymnasium	Prizren
10	EPIP School	Luciano Motroni	Vocational	Prizren
11	EPIP School	Arkitekt Sinani	Vocational	Mitrovica
12	EPIP School	Fehmi Lladrovci	Vocational	Drenas
13	EPIP School	Latif Berisha	Vocational	Vushtri
14	EPIP School	Gj K Skenderbeu	Gymnasium	Drenas
15	Non-EPIP School	Frang Bardhi	Gymnasium	Mitrovica
16	Non-EPIP School	Zenel Hajdini	Gymnasium	Gjilan
17	Non-EPIP School	Kuvendi i Arberit	Gymnasium	Ferizaj
18	Non-EPIP School	Abdyl Frasheri	Vocational	Prishtina
19	Non-EPIP School	Hivzi Sulejmani	Gymnasium	Fushe Kosova
20	Non-EPIP School	Fan Noli	Vocational	Podujeva
21	Non-EPIP School	Vllezerit Frasheri	Gymnasium	Decan
22	Non-EPIP School	Shtjefen Gjecovi	Vocational	Prishtina
23	Non-EPIP School	Hajdar Dushi	Gymnasium	Gjakova
24	Non-EPIP School	Xheladin Deda	Vocational	Mitrovica
25	Non-EPIP School	Gani Qavdardbasha	Vocational	Prizren
26	Non-EPIP School	Anton Ceta	Vocational	Skenderaj
27	Non-EPIP School	Lutfi Musiqi	Vocational	Vushtri
28	Non-EPIP School	Hamez Jashari	Gymnasium	Skenderaj

1

\_\_\_\_\_

[illegible][illegible]

School Code:  
Municipality:  
Academic Year:  
School Type:  
School Name:  
Director Name:  
Phone:  
E-mail:


a) School

--

b) Satellite school

--

Classes	Number of classes	Student No.			Number of student absences based on their ethnic bacground					
					Albanians		Other		Total	
		Male	Female	Total	Justified	Unjustified	Justified	Unjustified	Justified	Unjustified
I										
II										
III										
IV										
V										
VI										
VII										
VIII										
IX										
X										
XI										
XII										
XIII										
Total										

**School Code:**  
**Municipality:**  
**Academic Year:**  
**School Type:**  
**School Name:**  
**Director Name:**  
**Phone:**  
**E-mail:**


a) School

b) Deattached classes/satellite schools

Grades	Number of classes	Student number			Dropout during academic year based on ethnic bacground								
		Male	Female	Total	Albanian students			Other students			Total		
					M	F	GJ	M	F	GJ	M	F	GJ
IX													
X													
XI													
XII													
XIII													
Total													

School Code:  
Municipality:  
Academic Year:  
School Type:  
School Name:  
Director Name:  
Phone:  
E-mail:


a)School

--

b) Deattached classes/satellite schools

--

Grades	Number of Classes	Student number			Student achievement at the end of academic year						
		Male	Female	Total	Excellent	Very Good	Good	Satisfactory	Unsatisfactory	Ungraded	Total
I											
II											
III											
IV											
V											
VI											
VII											
VIII											
IX											
X											
XI											
XII											
XIII											
Total											

## Appendix A6.1 Estimation of the continuation rate for the class 10-11/11-12

**Table A6.1.1 Descriptive statistics of the continuation model for class 10-11/11-12**

Estimation sample regress

Number of obs = 167

Variable	Mean	Std. Dev.	Min	Max
Crlead	79.16186	23.56508	56.0811	120.968
_class2	.287006	.5014948	0	1
femalepc	45.34684	16.2236	4.74934	93.1774
povertyp	3.145729	2.752999	0	10.828
ethnicg	5.162148	3.498813	.189036	12.8926
AttEVG	43.37269	17.57436	9.76	88.71
ecdummy	.497006	.5014948	0	1
EPIPActive	.2576647	.3746918	0	1
prdumy	.2155689	.4124531	0	1
myofex	26.98	7.595967	12	41
urbrur_1	.6047904	.490366	0	1
TeUHPS	92.44311	4.296885	78	99.8
extavg	14.86329	1.797065	11.15	19.86

**Table A6.1.2 Estimation of the continuation rate and diagnostics for the level model for class 10-11/11-12**

regress Crlead \_class2 femalepc povertyp ethnicg AttEVG ecdummy EPIPActive prdumy myofex  
urbrur\_1 TeUHPS extavg if \_class3==0

Source	SS	df	MS	Number of obs = 167
Model	7128.09173	12	594.007644	F( 12, 154) = 9.22
Residual	9923.40616	154	64.4377023	Prob > F = 0.0000
Total	17051.4979	166	102.719867	R-squared = 0.4180
				Adj R-squared = 0.3727
				Root MSE = 8.0273

Crlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_class2	5.147056	1.25961	4.09	0.000	2.658711 7.6354
femalepc	.0703156	.0534221	1.32	0.190	-.0352191 .1758504
povertyp	-.3288948	.4044904	-0.81	0.417	-1.127961 .4701712
ethnicg	-.6354786	.2507455	-2.53	0.012	-1.130823 -.1401338
AttEVG	.2323563	.0521562	4.46	0.000	.1293224 .3353902
ecdummy	-3.310735	1.527704	-2.17	0.032	-6.328697 -.292773
EPIPActive	3.621408	1.866861	1.94	0.054	-.0665548 7.30937
prdumy	3.063696	1.878366	1.63	0.105	-.6469931 6.774385
myofex	-.0965475	.1069923	-0.90	0.368	-.3079094 .1148145
urbrur_1	2.00931	1.750805	1.15	0.253	-1.449385 5.468004
TeUHPS	.0229611	.1641321	0.14	0.889	-.3012799 .347202
extavg	-.269842	.4895323	-0.55	0.582	-1.236907 .6972232
_cons	82.49258	17.23755	4.79	0.000	48.44 116.5451

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of Crlead

F(1 , 165) = 4.17

Prob > F = 0.0428

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of Crlead

Ho: model has no omitted variables

F(3, 151) = 4.81

Prob > F = 0.0032

```
. sktest res1 if _class3==0
```

Skewness/Kurtosis tests for Normality

----- joint -----

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Res1	167	0.3784	0.0041	8.19	0.0166

**Table A6.1.3 Estimation of the continuation rate and diagnostics for the semi-log model for class 10-11/11-12**

```
regress lnCrlead _class2 femalepc povertyp ethnicg AttEVG ecdummy EPIPActive prdummy myofex  
urbrur_1 TeUHPS extavg if _class3==0
```

Source	SS	df	MS	Number of obs = 167		
Model	.997012365	12	.083084364	F( 12, 154) = 9.37		
Residual	1.36504249	154	.008863912	Prob > F = 0.0000		
Total	2.36205486	166	.014229246	R-squared = 0.4221		
				Adj R-squared = 0.3771		
				Root MSE = .09415		

lnCrlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
_class2	.0629915	.0147733	4.26	0.000	.0338069	.0921761
femalepc	.00107	.0006266	1.71	0.090	-.0001677	.0023078
povertyp	-.004314	.0047441	-0.91	0.365	-.0136859	.0050578
ethnicg	-.007751	.0029409	-2.64	0.009	-.0135607	-.0019414
AttEVG	.0024401	.0006117	3.99	0.000	.0012316	.0036485
ecdummy	-.0440406	.0179177	-2.46	0.015	-.0794367	-.0086444
EPIPActive	.0503626	.0218955	2.30	0.023	.0071083	.0936169
prdummy	.0338053	.0220304	1.53	0.127	-.0097156	.0773261
myofex	-.0013943	.0012549	-1.11	0.268	-.0038733	.0010846
urbrur_1	.0258467	.0205343	1.26	0.210	-.0147187	.066412
TeUHPS	.0006216	.001925	0.32	0.747	-.0031812	.0044245
extavg	-.0023887	.0057415	-0.42	0.678	-.0137309	.0089535
_cons	4.369319	.2021707	21.61	0.000	3.969934	4.768705

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnCrlead

F(1 , 165) = 13.09

Prob > F = 0.0004

. estat ovtest

Ramsey RESET test using powers of the fitted values of lnCrlead

Ho: model has no omitted variables

F(3, 151) = 5.90

Prob > F = 0.0008

. predict res6 if \_class3==0, residuals

(224 missing values generated)

. sktest res2 if \_class3==0

Skewness/Kurtosis tests for Normality

----- joint -----

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Res2	167	0.1545	0.0099	7.93	0.0189

**Table A6.1.4 Estimation of the continuation rate and diagnostics for the log-log model for class 10-11/11-12**

regress lnCrlead \_class2 lnfemalepc povertyp ethnicg lnAttEVG ecdummy EPIPActive prdummy myofex urbrur\_1 TeUHPS extavg if \_class3==0

Source	SS	df	MS	Number of obs =	167
Model	.995498418	12	.082958201	F( 12, 154) =	9.35
Residual	1.36655644	154	.008873743	Prob > F =	0.0000
				R-squared =	0.4215
				Adj R-squared =	0.3764
Total	2.36205486	166	.014229246	Root MSE =	.0942

lnCrlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_class2	.0574509	.0149014	3.86	0.000	.0280134 .0868884
lnfemalepc	.0175319	.0209514	0.84	0.404	-.0238573 .0589212
povertyp	-.0025509	.0047793	-0.53	0.594	-.0119923 .0068905
ethnicg	-.0073889	.002949	-2.51	0.013	-.0132147 -.0015632
lnAttEVG	.10253	.0235276	4.36	0.000	.0560515 .1490084
ecdummy	-.0447446	.0175865	-2.54	0.012	-.0794865 -.0100027
EPIPActive	.0501744	.0219216	2.29	0.023	.0068685 .0934803
prdummy	.0250241	.0223791	1.12	0.265	-.0191856 .0692338
myofex	-.000917	.0012875	-0.71	0.477	-.0034604 .0016264
urbrur_1	.0307296	.0208548	1.47	0.143	-.0104688 .071928
TeUHPS	.0009988	.0019274	0.52	0.605	-.0028088 .0048064
extavg	-.0042808	.0057393	-0.75	0.457	-.0156186 .0070571



_cons		4.060297	.2131317	19.05	0.000	3.639258	4.481336
-------	--	----------	----------	-------	-------	----------	----------

. estat hettest, fstat

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnCrlead

F(1 , 165) = 13.70

Prob > F = 0.0003

. estat ovtest

Ramsey RESET test using powers of the fitted values of lnCrlead

Ho: model has no omitted variables

F(3, 151) = 3.36

Prob > F = 0.0203

. sktest res3 if \_class3==0

Skewness/Kurtosis tests for Normality

----- joint -----

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Res3	167	0.1341	0.0047	9.14	0.0104

**Table A6.1.5 Estimation of the continuation rate and diagnostics for the linear-log model for class 10-11/11-12**

regress Crlead \_class2 lnfemalepc povertyp ethnicg lnAttEVG ecdummy EPIPActive prdummy myofex urbrur\_1 TeUHPS extavg if \_class3==0

Source	SS	df	MS	Number of obs =	167
Model	7087.79175	12	590.649312	F( 12, 154) =	9.13
Residual	9963.70614	154	64.6993905	Prob > F =	0.0000
				R-squared =	0.4157
				Adj R-squared =	0.3701
Total	17051.4979	166	102.719867	Root MSE =	8.0436

Crlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
_class2	4.652942	1.272399	3.66	0.000	2.139333 7.166551
lnfemalepc	.7632577	1.788998	0.43	0.670	-2.770886 4.297401
povertyp	-.1792944	.4080927	-0.44	0.661	-.9854767 .6268879
ethnicg	-.6052761	.2518086	-2.40	0.017	-1.102721 -.1078313
lnAttEVG	9.598394	2.008972	4.78	0.000	5.629695 13.56709
ecdummy	-3.457007	1.501674	-2.30	0.023	-6.423546 -.4904688
EPIPActive	3.612549	1.871844	1.93	0.055	-.0852557 7.310353
prdummy	2.355456	1.910908	1.23	0.220	-1.41952 6.130432
myofex	-.0531817	.1099347	-0.48	0.629	-.2703564 .1639931
urbrur_1	2.363658	1.780748	1.33	0.186	-1.154188 5.881503
TeUHPS	.0522502	.1645773	0.32	0.751	-.2728703 .3773707
extavg	-.4303604	.4900642	-0.88	0.381	-1.398476 .5377557

```

      _cons |   56.07894   18.19888    3.08   0.002   20.12727   92.03062
-----+-----

```

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of Crlead

F(1, 165) = 4.85

Prob > F = 0.0291

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of Crlead

Ho: model has no omitted variables

F(3, 151) = 2.82

Prob > F = 0.0408

```
. sktest res4 if _class3==0
```

Skewness/Kurtosis tests for Normality

----- joint -----

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Res4	167	0.4108	0.0026	8.74	0.0126

**Table A6.1.6 Estimation of the standardized beta coefficients for the continuation rate model for class 10-11/11-12**

```

regress Crlead _class2 femalepc povertyp ethnicg AttEVG ecdummy EPIPActive prdummy myofex urbrur_1 TeUHPS
> extavg if _class3==0, beta

```

Source	SS	df	MS	Number of obs = 167		
Model	7128.09173	12	594.007644	F( 12, 154)	=	9.22
Residual	9923.40616	154	64.4377023	Prob > F	=	0.0000
				R-squared	=	0.4180
				Adj R-squared	=	0.3727
Total	17051.4979	166	102.719867	Root MSE	=	8.0273

Crlead	Coef.	Std. Err.	t	P> t	Beta
_class2	5.147056	1.25961	4.09	0.000	.2546819
femalepc	.0703156	.0534221	1.32	0.190	.1144994
povertyp	-.3288948	.4044904	-0.81	0.417	-.0559133
ethnicg	-.6354786	.2507455	-2.53	0.012	-.1999414
AttEVG	.2323563	.0521562	4.46	0.000	.3955726
ecdummy	-3.310735	1.527704	-2.17	0.032	-.1638187
EPIPActive	3.621408	1.866861	1.94	0.054	.1338827
prdummy	3.063696	1.878366	1.63	0.105	.1246789
myofex	-.0965475	.1069923	-0.90	0.368	-.0737886
urbrur_1	2.00931	1.750805	1.15	0.253	.0972165
TeUHPS	.0229611	.1641321	0.14	0.889	.009576
extavg	-.269842	.4895323	-0.55	0.582	-.0481123
_cons	82.49258	17.23755	4.79	0.000	.

## Appendix A6.2 Estimation of the continuation rate and diagnostics without attainment for continuation rate 10-11/11-12

**Table A6.2.1 Estimation of the continuation rate and diagnostics for the level- model for class 10-12/11-12 (Without Attainment)**

```
regress Crlead _class2 femalepc povertyp ethnicg ecdummy EPIPActive prdummy myofex urbrur_1
TeUHPS extavg if _class3==0
```

Source	SS	df	MS	Number of obs = 167		
Model	5849.18853	11	531.744412	F( 11, 155) = 7.36		
Residual	11202.3094	155	72.2729636	Prob > F = 0.0000		
Total	17051.4979	166	102.719867	R-squared = 0.3430		
				Adj R-squared = 0.2964		
				Root MSE = 8.5014		

Crlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
_class2	5.634117	1.32896	4.24	0.000	3.008907	8.259328
femalepc	.2304894	.0418461	5.51	0.000	.147827	.3131517
povertyp	-.3240518	.4283755	-0.76	0.451	-1.170259	.5221556
ethnicg	-.732608	.2645472	-2.77	0.006	-1.255191	-.2100248
ecdummy	-4.553919	1.590701	-2.86	0.005	-7.696168	-1.411669
EPIPActive	3.247564	1.975108	1.64	0.102	-.6540387	7.149166
prdummy	2.842299	1.988593	1.43	0.155	-1.085943	6.770541
myofex	-.2295564	.1088095	-2.11	0.036	-.4444973	-.0146155
urbrur_1	3.788137	1.805333	2.10	0.038	.2219046	7.354369
TeUHPS	.013901	.1738113	0.08	0.936	-.3294437	.3572456
extavg	.2039964	.5060561	0.40	0.687	-.7956604	1.203653
_cons	81.39074	18.25361	4.46	0.000	45.3328	117.4487

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of Crlead

F(1, 165) = 6.65

Prob > F = 0.0108

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of Crlead

Ho: model has no omitted variables

F(3, 152) = 3.10

Prob > F = 0.0287

```
. sktest res5 if _class3==0
```

Skewness/Kurtosis tests for Normality

----- joint -----

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Res5	167	0.0509	0.0034	10.76	0.0046

**Table A6.2.2 Estimation of the continuation rate for the clustered robust standard errors for class 10-11/11-12 (Without Attainment)**

Linear regression

Number of obs = 167  
F( 11, 27) = 18.93  
Prob > F = 0.0000  
R-squared = 0.3430  
Root MSE = 8.5014

(Std. Err. adjusted for 28 clusters in schno)

Crlead	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
_class2	5.634117	1.497692	3.76	0.001	2.561107	8.707127
femalepc	.2304894	.0431072	5.35	0.000	.1420407	.318938
povertyp	-.3240518	.6577426	-0.49	0.626	-1.673628	1.025525
ethnicg	-.732608	.3093628	-2.37	0.025	-1.367368	-.097848
ecdummy	-4.553919	1.931755	-2.36	0.026	-8.517553	-.5902852
EIPActive	3.247564	1.564969	2.08	0.048	.0365133	6.458614
prdummy	2.842299	3.645576	0.78	0.442	-4.637804	10.3224
myofex	-.2295564	.1281449	-1.79	0.084	-.492488	.0333752
urbrur_1	3.788137	1.391593	2.72	0.011	.9328233	6.64345
TeUHPS	.013901	.1587782	0.09	0.931	-.311885	.339687
extavg	.2039964	.6383664	0.32	0.752	-1.105823	1.513816
_cons	81.39074	20.59596	3.95	0.001	39.13133	123.6502

## Appendix A6.3 Estimation of the continuation rate for the class 12-13 only

**Table A6.3.1. Estimation of the continuation rate and diagnostics for the level model for class 12-13**

```
regress Crlead femalepc povertyp ethnicg AttEVG ecdummy EPIPActive prdummy myofex urbrur_1
TeUHPS extavg if _class> 3==1
```

Source	SS	df	MS	Number of obs = 75		
Model	16837.0837	11	1530.64397	F( 11, 63) = 2.24		
Residual	43098.9576	63	684.110438	Prob > F = 0.0229		
				R-squared = 0.2809		
				Adj R-squared = 0.1554		
Total	59936.0413	74	809.946504	Root MSE = 26.156		

Crlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	-.4373498	.2545019	-1.72	0.091	-.9459313	.0712317
povertyp	4.778466	2.279435	2.10	0.040	.2233784	9.333553
ethnicg	.2051944	1.115067	0.18	0.855	-2.023088	2.433477
AttEVG	-.0623181	.2478217	-0.25	0.802	-.5575502	.4329141
ecdummy	-1.718943	7.28812	-0.24	0.814	-16.28309	12.8452
EPIPActive	1.222105	9.852469	0.12	0.902	-18.46648	20.91069
prdummy	4.706478	10.34346	0.46	0.651	-15.96327	25.37623
myofex	1.095027	.5131575	2.13	0.037	.0695633	2.12049
urbrur_1	-13.21357	8.296925	-1.59	0.116	-29.79365	3.366516
TeUHPS	.4967412	.7735994	0.64	0.523	-1.049174	2.042656
extavg	.704877	2.335753	0.30	0.764	-3.962753	5.372507
_cons	-9.45249	81.39265	-0.12	0.908	-172.1027	153.1977

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of Crlead

F(1 , 73) = 0.52

Prob > F = 0.4727

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of Crlead

Ho: model has no omitted variables

F(3, 60) = 2.55

Prob > F = 0.0638

```
. sktest res13 if _class3==1
```

Skewness/Kurtosis tests for Normality

----- joint -----

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
res13	75	0.7090	0.0352	4.61	0.0996

**Table A6.3.2 Estimation of the continuation rate and diagnostics for the semi-log model for class 12-13**

```
. regress lnCrlead femalepc povertyp ethnicg AttEVG ecdummy EPIPActive prdummy myofex urbrur_1
TeUHPS extavg if _class3==1
```

Source	SS	df	MS	Number of obs =	75
Model	10.2303059	11	.930027805	F( 11, 63) =	2.62
Residual	22.3469752	63	.354713892	Prob > F =	0.0081
				R-squared =	0.3140
				Adj R-squared =	0.1943
Total	32.5772811	74	.440233528	Root MSE =	.59558

lnCrlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
femalepc	-.0110852	.0057952	-1.91	0.060	-.0226659 .0004956
povertyp	.1185459	.0519043	2.28	0.026	.0148235 .2222684
ethnicg	.0144623	.0253908	0.57	0.571	-.0362772 .0652018
AttEVG	-.0005987	.0056431	-0.11	0.916	-.0118755 .0106781
ecdummy	.0683812	.1659554	0.41	0.682	-.2632543 .4000167
EPIPActive	.0324593	.2243474	0.14	0.885	-.4158632 .4807819
prdummy	.1450737	.2355276	0.62	0.540	-.3255906 .615738
myofex	.0168527	.0116849	1.44	0.154	-.0064978 .0402032
urbrur_1	-.4700316	.1889266	-2.49	0.016	-.8475713 -.0924919
TeUHPS	.0225455	.0176154	1.28	0.205	-.012656 .0577471
extavg	.038141	.0531867	0.72	0.476	-.0681441 .1444261
_cons	1.185956	1.853366	0.64	0.525	-2.517701 4.889612

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnCrlead

F(1, 73) = 16.37

Prob > F = 0.0001

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of lnCrlead

Ho: model has no omitted variables

F(3, 60) = 4.09

Prob > F = 0.0105

```
. sktest res14 if _class3==1
```

Skewness/Kurtosis tests for Normality						
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj	joint chi2(2)	Prob>chi2
res14	75	0.2427	0.8446	1.45		0.4849

**Table A6.3.3 Estimation of the continuation rate and diagnostics for the log-log model for class 12-13**

```
. regress lnCrlead lnfemalepc povertyp ethnicg lnAttEVG ecdummy EPIPActive prdummy myofex  
urbrur_1 TeUHPS extavg if _class3==1
```

Source	SS	df	MS	Number of obs = 75		
Model	11.0270843	11	1.0024622	F( 11, 63) = 2.93		
Residual	21.5501968	63	.342066616	Prob > F = 0.0035		
				R-squared = 0.3385		
				Adj R-squared = 0.2230		
Total	32.5772811	74	.440233528	Root MSE = .58486		

lnCrlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnfemalepc	-.3137461	.1681731	-1.87	0.067	-.6498131	.022321
povertyp	.1116076	.0515672	2.16	0.034	.0085587	.2146565
ethnicg	.0136346	.0248487	0.55	0.585	-.0360216	.0632908
lnAttEVG	-.1635559	.2270776	-0.72	0.474	-.6173343	.2902225
ecdummy	.0418462	.1622152	0.26	0.797	-.2823151	.3660074
EPIPActive	.0112529	.2237989	0.05	0.960	-.4359734	.4584792
prdummy	.2002504	.235571	0.85	0.399	-.2705007	.6710015
myofex	.0174104	.0114792	1.52	0.134	-.005529	.0403498
urbrur_1	-.5168457	.1829344	-2.83	0.006	-.8824109	-.1512805
TeUHPS	.0214195	.0173068	1.24	0.220	-.0131653	.0560043
extavg	.040171	.0522144	0.77	0.445	-.0641712	.1445131
_cons	2.544361	1.949154	1.31	0.197	-1.350712	6.439434

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of lnCrlead

F(1, 73) = 13.64

Prob > F = 0.0004

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of lnCrlead

Ho: model has no omitted variables

F(3, 60) = 4.84

Prob > F = 0.0044

```
. sktest res15 if _class3==1
```

Skewness/Kurtosis tests for Normality					
----- joint -----					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
res15	75	0.2069	0.9329	1.65	0.4377

**Table A6.3.4 Estimation of the continuation rate and diagnostics for the linear-log model for class 12-13**

```
. regress Crlead lnfemalepc povertyp ethnicg lnAttEVG ecdummy EPIPActive prdummy myofex urbrur_1
TeUHPS extavg if _class3==1
```

Source	SS	df	MS	Number of obs =	75
Model	18580.6	11	1689.14546	F( 11, 63) =	2.57
Residual	41355.4413	63	656.435576	Prob > F =	0.0092
				R-squared =	0.3100
				Adj R-squared =	0.1895
Total	59936.0413	74	809.946504	Root MSE =	25.621

Crlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnfemalepc	-13.18741	7.36711	-1.79	0.078	-27.9094 1.534589
povertyp	4.464261	2.258992	1.98	0.053	-.0499731 8.978496
ethnicg	.1510955	1.088541	0.14	0.890	-2.024181 2.326372
lnAttEVG	-7.636136	9.947525	-0.77	0.446	-27.51468 12.24241
ecdummy	-2.734213	7.106116	-0.38	0.702	-16.93465 11.46623
EPIPActive	.417991	9.803893	0.04	0.966	-19.17353 20.00951
prdummy	7.166735	10.31959	0.69	0.490	-13.45533 27.7888
myofex	1.117325	.5028673	2.22	0.030	.1124251 2.122225
urbrur_1	-15.15044	8.013755	-1.89	0.063	-31.16466 .8637674
TeUHPS	.4467532	.7581524	0.59	0.558	-1.068294 1.9618
extavg	.7505041	2.287342	0.33	0.744	-3.820383 5.321392
_cons	51.02507	85.38603	0.60	0.552	-119.6053 221.6554

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity  
Ho: Constant variance  
Variables: fitted values of Crlead

F(1 , 73) = 0.15  
Prob > F = 0.7027

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of Crlead  
Ho: model has no omitted variables  
F(3, 60) = 3.04  
Prob > F = 0.0356

```
sktest res16 if _class3==1
```

Skewness/Kurtosis tests for Normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	joint Prob>chi2
res16	75	0.7598	0.0589	3.81	0.1491



**Table A6.3.5 Estimation of the continuation rate and diagnostics for the linear-log model for class 12-13 (cluster robust standard errors)**

Linear regression

Number of obs = 75  
F( 11, 24) = 3.07  
Prob > F = 0.0105  
R-squared = 0.2809  
Root MSE = 26.156

(Std. Err. adjusted for 25 clusters in schno)

Crlead	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	-.4373498	.2987865	-1.46	0.156	-1.054015	.1793153
povertyp	4.778466	2.230341	2.14	0.043	.1752689	9.381663
ethnicg	.2051944	1.291344	0.16	0.875	-2.460009	2.870397
AttEVG	-.0623181	.3183592	-0.20	0.846	-.719379	.5947429
ecdummy	-1.718943	8.397086	-0.20	0.840	-19.04968	15.61179
EIPActive	1.222105	6.547749	0.19	0.854	-12.29178	14.73599
prdummy	4.706478	9.201507	0.51	0.614	-14.2845	23.69745
myofex	1.095027	.6861412	1.60	0.124	-.3210992	2.511153
urbrur_1	-13.21357	10.09715	-1.31	0.203	-34.05306	7.625929
TeUHPS	.4967412	.7919959	0.63	0.536	-1.137858	2.13134
extavg	.704877	1.942658	0.36	0.720	-3.304572	4.714326
_cons	-9.45249	87.81293	-0.11	0.915	-190.6895	171.7845

## Appendix A6.4 Estimation of the continuation rate for the class 12-13 only

**Table A6.4.1 Estimation of the continuation rate and diagnostics for the level model for class 12-13 (without attainment)**

```
regress Crlead femalepc povertyp ethnicg ecdummy EPIPActive prdummy myofex urbrur_1 TeUHPS
extavg if_class3==1
```

Source	SS	df	MS	Number of obs = 75		
Model	16793.8248	10	1679.38248	F( 10, 64)	=	2.49
Residual	43142.2165	64	674.097133	Prob > F	=	0.0136
				R-squared	=	0.2802
				Adj R-squared	=	0.1677
Total	59936.0413	74	809.946504	Root MSE	=	25.963

Crlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	-.4778033	.1957603	-2.44	0.017	-.8688793	-.0867272
povertyp	4.737619	2.256939	2.10	0.040	.2288649	9.246372
ethnicg	.213821	1.106352	0.19	0.847	-1.996371	2.424013
ecdummy	-1.519846	7.191768	-0.21	0.833	-15.88705	12.84736
EPIPActive	1.572195	9.681964	0.16	0.872	-17.76975	20.91414
prdummy	5.056676	10.17399	0.50	0.621	-15.26821	25.38156
myofex	1.10157	.5087328	2.17	0.034	.0852591	2.11788
urbrur_1	-13.48594	8.165493	-1.65	0.104	-29.79839	2.826504
TeUHPS	.4940919	.7678458	0.64	0.522	-1.039856	2.02804
extavg	.6544616	2.310039	0.28	0.778	-3.960372	5.269295
_cons	-9.520908	80.79433	-0.12	0.907	-170.9261	151.8843

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of Crlead

F(1 , 73) = 0.45

Prob > F = 0.5043

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of Crlead

Ho: model has no omitted variables

F(3, 61) = 2.67

Prob > F = 0.0557

```
. sktest res20 if _class3==1
```

Skewness/Kurtosis tests for Normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	joint Prob>chi2
res20	75	0.7263	0.0225	5.20	0.0741

## Appendix A6.5 Estimation of the fixed effects model

### Appendix A6.5.1 Estimation of the fixed effects model for continuation rate 10-12

```
. xtreg Crlead _class2 femalepc povertyp ethnicg AttEVG EPIPActive _year2 if Crlead
> <200 & _class3==0, fe
```

```
Fixed-effects (within) regression      Number of obs   =      167
Group variable: identifier             Number of groups =      111

R-sq:  within = 0.4560                  Obs per group:  min =        1
      between = 0.2686                  avg   =      1.5
      overall  = 0.3201                  max   =        2

corr(u_i, Xb) = -0.7300                  F(7,49)         =      5.87
                                      Prob > F          =      0.0001
```

Crlead	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
_class2	7.639628	2.057128	3.71	0.001	3.505675 11.77358	
femalepc	.3840625	.231534	1.66	0.104	-.0812225 .8493475	
povertyp	-.1882287	.6861864	-0.27	0.785	-1.567172 1.190714	
ethnicg	.1309869	1.01227	0.13	0.898	-1.903245 2.165219	
AttEVG	.4262362	.1702497	2.50	0.016	.0841066 .7683658	
EPIPActive	-2.39552	4.56672	-0.52	0.602	-11.57269 6.781649	
_year2	-1.758705	2.035818	-0.86	0.392	-5.849835 2.332426	
_cons	52.81551	12.55435	4.21	0.000	27.58661 78.04442	
sigma_u	10.935209					
sigma_e	8.4857694					
rho	.62414855	(fraction of variance due to u_i)				

F test that all u\_i=0: F(110, 49) = 1.00 Prob > F = 0.5090

### Appendix A6.5.2 Estimation of the fixed effects model for continuation rate 10-12 (clustered robust)

```
. xtreg Crlead _class2 femalepc povertyp ethnicg AttEVG EPIPActive _year2 if Crlead
> <200 & _class3==0, fe vce(cluster schno)
```

```
Fixed-effects (within) regression      Number of obs   =      167
Group variable: identifier             Number of groups =      111

R-sq:  within = 0.4560                  Obs per group:  min =        1
      between = 0.2686                  avg   =      1.5
      overall  = 0.3201                  max   =        2

corr(u_i, Xb) = -0.7300                  F(7,27)         =     21.54
                                      Prob > F          =      0.0000
```

(Std. Err. adjusted for 28 clusters in schno)

Crlead	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
_class2	7.639628	2.049479	3.73	0.001	3.434444 11.84481
femalepc	.3840625	.2501549	1.54	0.136	-.129213 .897338
povertyp	-.1882287	.9931333	-0.19	0.851	-2.22597 1.849512
ethnicg	.1309869	.9901346	0.13	0.896	-1.900601 2.162575
AttEVG	.4262362	.1655794	2.57	0.016	.0864954 .765977
EPIPActive	-2.39552	4.239057	-0.57	0.577	-11.09335 6.302307
_year2	-1.758705	2.016466	-0.87	0.391	-5.89615 2.378741
_cons	52.81551	14.55712	3.63	0.001	22.94676 82.68427

-----+-----
sigma_u   10.935209
sigma_e   8.4857694
rho   .62414855 (fraction of variance due to u_i)
-----

## Appendix A7.1

**Table A7.1. Two stages least squares estimation (IV- teacher education, teacher years of experience)**

Variable	Coefficient	P>Z z
Attainment	0.08	0.322
Females	-0.13	0.190
Student socio-economic status	0.15	0.417
Ethnicity	0.24	0.007
EPIP school (Dummy)	-0.12	0.862
EPIP treatment (dummy)	1.03	0.071
Prishtina school (dummy)	3.06	0.031
School directors' years of experience	0.02	0.677
Urban/Rural (dummy)	-0.26	0.725
_cons	4.20	0.000
N=269		
R squared = 0.09		
Instrumented: Attainment		

**Table A7.2 OLS estimation and diagnostics of the absence rate model**

Source	SS	df	MS	Number of obs =	269
F( 8, 260) =	10.44				
Model	755.31772	8	94.414715	Prob > F	= 0.0000
Residual	2351.31815	260	9.04353133	R-squared	= 0.2431
Adj R-squared =	0.2198				
Total	3106.63587	268	11.5919249	Root MSE	= 3.0072

AbR	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
femalepc	-.0764621	.0113448	-6.74	0.000	-.0988016	-.0541227
povertyp	.2660292	.070391	3.78	0.000	.1274202	.4046382
ethnicg	.1746557	.057295	3.05	0.003	.0618345	.287477
ecdummy	-.5820943	.46168	-1.26	0.209	-1.491202	.3270136
EPIPActive	.9848879	.5282696	1.86	0.063	-.0553435	2.025119
prdummy	1.068274	.5170411	2.07	0.040	.0501526	2.086395
myofex	-.006589	.0275022	-0.24	0.811	-.0607444	.0475664
urbrur_1	.2622497	.4787081	0.55	0.584	-.6803887	1.204888
_cons	5.768449	.9498796	6.07	0.000	3.898012	7.638885

. estat hettest, fstat

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity  
Ho: Constant variance  
Variables: fitted values of AbR

F(1, 267) = 16.91  
Prob > F = 0.0001

. estat ovtest

Ramsey RESET test using powers of the fitted values of AbR  
Ho: model has no omitted variables  
F(3, 257) = 1.21  
Prob > F = 0.3071

		Skewness/Kurtosis		tests for Normality		
		----- joint -----				
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2	
res20	243	0.0034	0.4788	8.33	0.0155	

**Table A7.3. OLS estimation and diagnostics of the absence rate model with past attainment**

```
. regress AbR femalepc povertyp ethnicg ecdummy EPIPActive prdummy AttEVGlag myofex urbrur_1 if _class3==0
```

Source	SS	df	MS	Number of obs =	158
Model	625.426308	9	69.491812	F( 9, 148) =	5.28
Residual	1946.49009	148	13.1519601	Prob > F =	0.0000
				R-squared =	0.2432
				Adj R-squared =	0.1972
Total	2571.9164	157	16.3816331	Root MSE =	3.6266

AbR	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
femalepc	-.078621	.0226041	-3.48	0.001	-.1232894 -.0339526
povertyp	.2627451	.0968005	2.71	0.007	.0714554 .4540347
ethnicg	.2411501	.0903178	2.67	0.008	.0626711 .4196291
ecdummy	-1.192435	.8393165	-1.42	0.158	-2.851027 .466157
EPIPActive	1.313502	.8810514	1.49	0.138	-.4275634 3.054568
prdummy	1.465139	.8215977	1.78	0.077	-.1584385 3.088717
AttEVGlag	-.0098822	.0212343	-0.47	0.642	-.0518438 .0320793
myofex	-.022253	.043735	-0.51	0.612	-.1086788 .0641728
urbrur_1	.3032987	.7752691	0.39	0.696	-1.228728 1.835325
_cons	6.828083	1.568836	4.35	0.000	3.727871 9.928295

```
. estat hettest, fstat
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of AbR

F(1, 156) = 9.27

Prob > F = 0.0027

```
. estat ovtest
```

Ramsey RESET test using powers of the fitted values of AbR

Ho: model has no omitted variables

F(3, 145) = 1.05

Prob > F = 0.3734

**Table A7.4 Estimation of the fixed model effects for the absence rate**

**Table A7.4.1 Estimation of the fixed model effects for the absence rate(Default Standard Errors)**

```
xtreg AbR femalepc povertyp ethnicg AttEVGlag EPIPActive _year2 _year3 if new_4==
> 0, fe
```

```
Fixed-effects (within) regression      Number of obs      =      168
Group variable: identifier             Number of groups    =      111

R-sq:  within  = 0.3634                Obs per group: min =        1
      between = 0.1398                      avg  =       1.5
      overall  = 0.1869                      max  =        2

                                         F(7,50)            =       4.08
corr(u_i, Xb) = -0.0449                Prob > F           =      0.0013
```

AbR	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	-.0407758	.03248	-1.26	0.215	-.1060138	.0244623
povertyp	-.1629485	.1365973	-1.19	0.239	-.4373122	.1114153
ethnicg	-.082842	.1527014	-0.54	0.590	-.3895519	.2238679
AttEVGlag	.0040191	.0204489	0.20	0.845	-.0370537	.0450918
EPIPActive	-.1823904	.6090795	-0.30	0.766	-1.405763	1.040982
_year2	-1.859012	.5039012	-3.69	0.001	-2.871128	-.846897
_year3	-1.104199	.2885916	-3.83	0.000	-1.683852	-.5245457
_cons	7.375982	1.844701	4.00	0.000	3.670792	11.08117
sigma_u	2.0897867					
sigma_e	1.0668257					
rho	.7932698	(fraction of variance due to u_i)				
F test that all u_i=0:		F(110, 50) =	3.38	Prob > F = 0.0000		

**Table A7.4.2 Estimation of the fixed model effects for absence rate(Cluster Robust Standard Errors)**

```
. xtreg AbR femalepc povertyp ethnicg AttEVGlag EPIPActive _year2 _year3 if new_4==
> 0, fe vce(cluster schno)
```

```
Fixed-effects (within) regression      Number of obs      =      168
Group variable: identifier             Number of groups    =      111

R-sq:  within  = 0.3634                Obs per group: min =        1
      between = 0.1398                      avg  =       1.5
      overall  = 0.1869                      max  =        2

                                         F(7,27)            =      10.60
corr(u_i, Xb) = -0.0449                Prob > F           =      0.0000
```

(Std. Err. adjusted for 28 clusters in schno)

AbR	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	-.0407758	.0408731	-1.00	0.327	-.1246406	.043089
povertyp	-.1629485	.1082534	-1.51	0.144	-.385066	.0591691
ethnicg	-.082842	.1915889	-0.43	0.669	-.4759499	.3102659
AttEVGlag	.0040191	.0305449	0.13	0.896	-.0586539	.0666921
EPIPActive	-.1823904	.8791923	-0.21	0.837	-1.986344	1.621563
_year2	-1.859012	.4356575	-4.27	0.000	-2.752908	-.965117
_year3	-1.104199	.2158139	-5.12	0.000	-1.547012	-.6613853
_cons	7.375982	2.513885	2.93	0.007	2.217916	12.53405
sigma_u	2.0897867					



sigma_e		1.0668257	
rho		.7932698	(fraction of variance due to u_i)

---

**Table A7.5 Estimation of the fixed model effects for attainment**

**Table A7.5.1 Estimation of the fixed model effects for high attainment (Default Standard Errors)**

xtreg AEVG femalepc povertyp ethnicg AbR RepeatR EPIPActive \_year2 \_year3 if new\_4=  
>=0, fe vce(cluster schno)

Fixed-effects (within) regression	Number of obs	=	292
Group variable: identifier	Number of groups	=	136
R-sq: within = 0.2065	Obs per group: min	=	1
between = 0.0182	avg	=	2.1
overall = 0.0443	max	=	3
	F(8,27)	=	3.81
corr(u_i, Xb) = -0.0929	Prob > F	=	0.0041

(Std. Err. adjusted for 28 clusters in schno)

AEVG	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	.1875155	.0887636	2.11	0.044	.0053877	.3696432
povertyp	-.5522142	.4222664	-1.31	0.202	-1.418633	.3142048
ethnicg	-.861653	.4584143	-1.88	0.071	-1.802241	.0789354
AbR	2.033382	.5896034	3.45	0.002	.8236156	3.243148
RepeatR	-.3473872	.145735	-2.38	0.024	-.6464108	-.0483637
EPIPActive	-.6630479	2.551137	-0.26	0.797	-5.897549	4.571453
_year2	2.094635	1.584156	1.32	0.197	-1.155785	5.345055
_year3	2.066277	.9421856	2.19	0.037	.1330721	3.999482
_cons	32.01446	5.227969	6.12	0.000	21.28755	42.74136
sigma_u	15.319553					
sigma_e	6.6110274					
rho	.84300803	(fraction of variance due to u_i)				

**Table A7.5.2 Estimation of the fixed model effects for high attainment (Cluster Robust Standard Errors)**

. xtreg AEVG femalepc povertyp ethnicg AbR RepeatR EPIPActive \_year2 \_year3 if new\_4=  
>=0, fe

Fixed-effects (within) regression	Number of obs	=	292
Group variable: identifier	Number of groups	=	136
R-sq: within = 0.2065	Obs per group: min	=	1
between = 0.0182	avg	=	2.1
overall = 0.0443	max	=	3
	F(8,148)	=	4.81
corr(u_i, Xb) = -0.0929	Prob > F	=	0.0000

AEVG	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	.1875155	.1019859	1.84	0.068	-.0140211	.389052
povertyp	-.5522142	.4599961	-1.20	0.232	-1.461223	.3567944
ethnicg	-.861653	.4505774	-1.91	0.058	-1.752049	.0287433
AbR	2.033382	.4461658	4.56	0.000	1.151704	2.91506
RepeatR	-.3473872	.1468283	-2.37	0.019	-.637538	-.0572365
EPIPActive	-.6630479	2.033459	-0.33	0.745	-4.681413	3.355317
_year2	2.094635	1.190173	1.76	0.080	-.2572926	4.446563
_year3	2.066277	1.101501	1.88	0.063	-.1104245	4.242979
_cons	32.01446	5.441738	5.88	0.000	21.26092	42.768

```

sigma_u | 15.319553
sigma_e | 6.6110274
rho      | .84300803 (fraction of variance due to u_i)
-----
F test that all u_i=0:      F(135, 148) =      6.27      Prob > F = 0.0000

```

**Table A7.5.3 Estimation of the fixed model effects for low attainment (Clustered Standard Errors)**

```

. xtreg ASF femalepc povertyp ethnicg AbR RepeatR EPIPActive _year2 _year3 if new_4==
> 0, fe vce(cluster schno)

```

```

Fixed-effects (within) regression      Number of obs      =      292
Group variable: identifier             Number of groups    =      136

R-sq:  within  = 0.1859                Obs per group: min =      1
      between  = 0.0232                avg      =      2.1
      overall  = 0.0598                max      =      3

corr(u_i, Xb) = -0.1628                F(8,27)            =      3.97
                                      Prob > F            =      0.0032

```

(Std. Err. adjusted for 28 clusters in schno)

ASF	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	-.1721052	.153835	-1.12	0.273	-.4877485	.1435381
povertyp	.5461771	.7986662	0.68	0.500	-1.092551	2.184905
ethnicg	1.198272	.6223646	1.93	0.065	-.0787149	2.475259
AbR	-1.82325	.7733514	-2.36	0.026	-3.410036	-.236464
RepeatR	.5461765	.213997	2.55	0.017	.1070909	.9852621
EPIPActive	2.759617	2.903823	0.95	0.350	-3.198535	8.717769
_year2	-1.364146	1.685582	-0.81	0.425	-4.822675	2.094382
_year3	-3.584892	1.428919	-2.51	0.018	-6.516791	-.6529927
_cons	39.28399	7.79256	5.04	0.000	23.29497	55.273
sigma_u	14.181537					
sigma_e	8.2643685					
rho	.74648929	(fraction of variance due to u_i)				

**Table A7.5.4 Estimation of the fixed model effects for low attainment (Default Standard Errors)**

```

. xtreg ASF femalepc povertyp ethnicg AbR RepeatR EPIPActive _year2 _year3 if new_4==
> 0, fe

```

```

Fixed-effects (within) regression      Number of obs      =      292
Group variable: identifier             Number of groups    =      136

R-sq:  within  = 0.1859                Obs per group: min =      1
      between  = 0.0232                avg      =      2.1
      overall  = 0.0598                max      =      3

corr(u_i, Xb) = -0.1628                F(8,148)          =      4.22
                                      Prob > F            =      0.0001

```

ASF	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
femalepc	-.1721052	.1274913	-1.35	0.179	-.4240437	.0798333
povertyp	.5461771	.5750358	0.95	0.344	-.590164	1.682518
ethnicg	1.198272	.5632616	2.13	0.035	.0851978	2.311346
AbR	-1.82325	.5577467	-3.27	0.001	-2.925426	-.7210742
RepeatR	.5461765	.1835484	2.98	0.003	.1834625	.9088905

EIPActive		2.759617	2.542004	1.09	0.279	-2.263694	7.782928
_year2		-1.364146	1.487821	-0.92	0.361	-4.304264	1.575971
_year3		-3.584892	1.376974	-2.60	0.010	-6.305961	-.8638221
_cons		39.28399	6.802653	5.77	0.000	25.84111	52.72686
-----							
sigma_u		14.181537					
sigma_e		8.2643685					
rho		.74648929	(fraction of variance due to u_i)				
-----							
F test that all u_i=0:		F(135, 148) =	3.70	Prob > F = 0.0000			
.							